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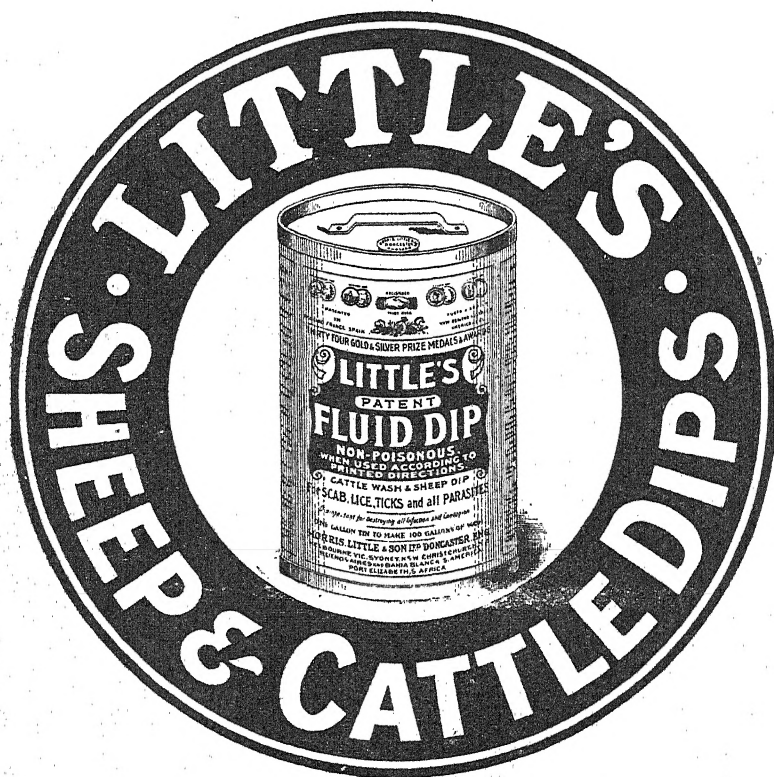
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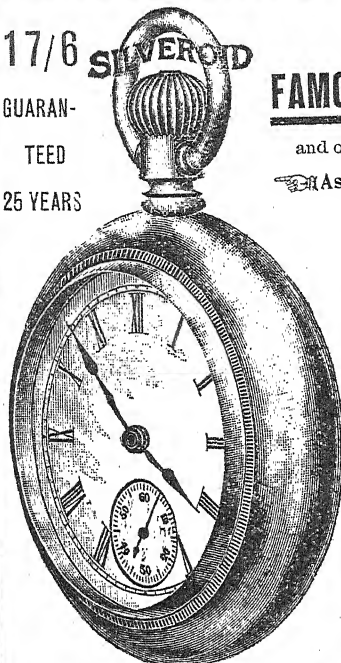
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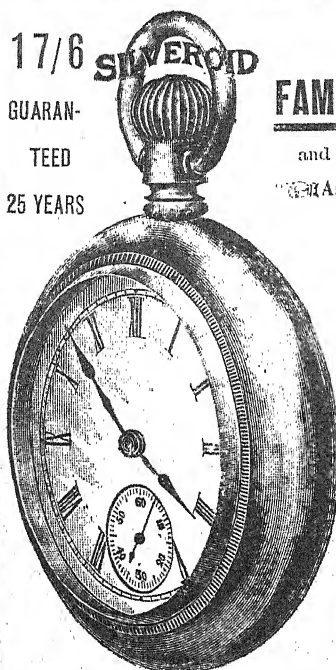
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# THE RHODESIAN AGRICULTURAL JOURNAL

Issued by the Agricultural Department.

EDITED BY L. A. KING-CHURCH.

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VOL. V.—NO. I.]

OCTOBER, 1907.

[5s. per annum.

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## Editorial.

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This issue of the "Agricultural Journal" starts a new volume. The Editor has been severely left alone as far as criticism goes from those for whom the Journal is provided, yet he feels conscious that just and severe criticism is due, and, as he said in his first Journal, "he invites criticism, and will welcome all suggestions"; so again now he repeats this, and adds the request for more contributions.

It is to the farmers' advantage to criticise and suggest, that the Journal, which is provided for their benefit, may contain those subjects in which they are most interested, or about which they wish to obtain further knowledge. The Editor promises to do his very best to obtain for them any information for which they may ask, not so much trusting to his own knowledge, but studying all the literature available on the subject, and giving it in as condensed and clear a form as possible. If the information is not quite correct, or conveys a wrong impression, it will most probably meet the eye of someone who knows better and who is able to correct or refute it, and thus useful knowledge may be forthcoming which otherwise would possibly not have been available for the use of all readers.

Contributions from farmers have been few, yet those who attended the Farmers' Congress must own that many of them can write both with interest and well on subjects of interest to all. There are not sufficient experts in the Department to provide the Journal with articles on their particular studies, and to complete the object for which the Journal is published, the personal experiences of individual farmers is most instructive and acceptable.

## LOCUSTS.

Perhaps one of the most important duties of the farmer at the present time is the destruction of locusts. Large quantities of poison and sugar, and a new and bigger supply of pumps have been provided this year, and, seeing that these are distributed free to any farmer who makes application for same, it is clearly the duty of everyone to do all in his power to destroy all the swarms that appear on occupied farms. Supplies have been sent to the Police Camps all over the country, and a policeman detailed off at each station for the special work of destroying the voetgangers, but their duty is not to relieve the farmer of his responsibility in freeing his farm of locusts, but to devote their attention in co-operation with the Native Department to unoccupied land and Native Reserves. With all these facilities provided, the man who says, "What's the good," and does not lift a hand in trying to rid the country of at least some swarms, deserves to be eaten out. It is too Utopian to hope to destroy all the locusts, but perseverance, combined with an optimistic spirit, will go a long way in helping to do it. Those people who say it is impossible, can no more prove their statement than we can that it is possible; only results can be accepted as proofs. If all locusts on occupied farms are blotted out, and with the assistance of the Native Commissioners and police many swarms on Native reserves and unoccupied lands as well, then we leave a smaller area for the natural enemies of the locust, such as locust birds, disease, etc., to carry out their work of destruction, with naturally more disastrous results to the locust.

Particular attention should be paid to the pamphlet containing the "Directions for use of Material," a copy of which is sent with each consignment of pumps and poison,

and a copy of which will be found in another part of this Journal. If the instructions contained in this pamphlet are strictly carried out, then the risk of poisoning stock is reduced to a minimum.

### GROUND NUTS.

The feeding value of ground nuts is being realised by mine owners, especially as a nitrogenous ration to go with mealie meal. To get the full work out of boys as much attention should be paid to their feeding as is devoted to the feeding of stock by those who wish to obtain good results from that branch of agriculture. Unless a well-balanced ration is supplied which contains the necessary ingredients to repair the wasted tissues of the body, the full amount of work cannot be got out of the labourers. No steam engine, for instance, will develop its full motive power unless provided with proper fuel, so too no human body can exert its full energy unless properly nourished. It has long been known that a diet consisting solely of mealie meal does not provide this proper nourishment.

The farmer should take advantage of this new demand and be prepared to provide the mine owners with a crop that contains the necessary nitrogenous ingredients lacking in mealies and other farinaceous foods, and is at the same time acceptable to the native palate. An article on the cultivation of ground nuts will be found in another part of this Journal.

### OSTRICHES.

Ostrich farming is being taken up seriously by many farmers in Rhodesia, and the article by Mr. Oscar E. G. Evans will be both interesting and useful to most of them. Mr. Evans is one of the leading ostrich farmers in the Cape Colony, and his observations therefore deserve the attention which the opinion of an expert always should receive. As he says: We have in Rhodesia the common stock in the off-spring of the wild ostrich with its strong hardy constitution, but lacking in quality. Those who already have a flock of birds would do well to pay special attention to his observations on this point, and be prepared when the captured birds are old enough for breeding to mate them with a cock bird of one of the best Cape Colony strains, and thus reap the benefits of that quality on which Mr. Evans puts so much emphasis.

It is reported that the two Perini fibre plantations in the State of Rio de Janeiro produced in March 200 tons of fibre and 750 tons of cellulose. English firms have offered Doctor Perini £40 per ton for all the fibre he is able to furnish, and £12 per ton for the cellulose. The Perini plant is capable of yielding three crops per year.—*Commercial Intelligence*.

### HUTCHEON MEMORIAL FUND.

The attention of those of our readers who were acquainted with the late Dr. Hutcheon, either personally or through the valuable services he rendered to the farmers of South Africa generally, is directed to the invitation for subscriptions towards the Hutcheon Memorial Fund, the objects of which are set forth in this Journal. Any person wishing to subscribe should forward their subscriptions to the Secretary for Agriculture, Salisbury, who will transmit to the Hon. Secretary and Treasurer.

---

### **The Ground Nut, or Monkey Nut.**

---

The recent call by the Rhodesia Chamber of Mines for tenders for the supply of Monkey-nuts as food for mine labourers, and the great improbability of an adequate supply being forthcoming from our local resources, brings into prominence the desirability of cultivating these ground-nuts as one of the regular rotation crops of Rhodesia. Rotation, not regular, because of the extremely exhausting nature of this rich specimen of the leguminosae family. For although it is true that it gathers by means of its root nodules large supplies of nitrogen from the air, yet it, like any other crop, if constantly and repeatedly cultivated, exhausts the soil of the properties most required to bring it to fruition. In most countries it is grown mainly as an oil-producer, which oil is very little inferior to Olive oil. It is extracted under pressure, and is often pressed as many as three times. The first extraction, which is what is called "cold-drawn," gives a clean, almost colourless oil of an agreeable taste and smell, excellent for table use. The second, also cold-drawn, gives an extract with more colour, and scarcely

as agreeable taste, but makes a very useful burning fluid. The third pressure, this time after slight warming, produces an oil of considerable value to the soap-maker. While last and by no means least there is left a cake which is excellent stock feed, being especially rich in proteids.

The Monkey-nut, or *Arachis Hypogaea*, as the scientists call it, belongs to the pea-family, though it has one great distinguishing characteristic, in that its seeds ripen under the soil. It is a clover-like plant, a field of it forcibly suggesting a luxuriant crop of clover. The stems may attain a height of 1 to 2 feet, or even at times of 3 feet, but for the most part they lie more or less prostrate on the soil. The flowers, which are pea-like, and of a bright orange-yellow colour, are produced one at a time from large buds at the bases of the leaves. Their life is a short one, for they wither for the most part on the day of their production. Not all the flowers fruit, many never advance beyond the blossoming stage, and are considered by some to be therefore male flowers. When the flower is over, the stem may be seen to lengthen out and bend gradually downwards to the ground, where it proposes to bury its fruit. This process is often assisted by turning over with the plough the soil in between the rows of plants. At 1 to 3 inches below the surface, rarely deeper, it ripens in the course of a few weeks into the familiar ground-nut. The number of seeds in a pod varies greatly, as though it is usually two, one is not uncommon, while three or four are occasionally found. In every case the fruiting is dependent on the effectual burying of the young pod.

The cultivation is extremely simple, and quite within the power of all. Naturally a few precautions are necessary. The soil should be got into a good state of tilth, after a crop of mealies or tobacco is a good time, in fact in America it is used as a rotation with mealies. Manure is very rarely necessary, in fact farmyard manure should not be applied directly for the crop of ground-nuts, but if applied for the mealie crop the year previous, its beneficial qualities will be quite sufficiently present for the ensuing crop of ground-nuts. In many soils the application of lime, or of wood ash is of great value. Before sowing on a large scale it is just as well to test the seed in some small patch, and great care should be exercised to preserve the seed from fungus and decay. Seed should

in fact be kept in its pods until required, and should never be more than a year old. It is well to shell before sowing, and to see this is done carefully. The time for sowing cannot be laid down to any set date, but just as with mealies, the farmer's own individual discretion is his best guide, remembering always that the crop takes about six months to mature, and that the sowing must not be so early as to expose the young plants to the risk of a late frost. About 40 lbs. per acre is sufficient seed. It is usually sown in drills, at distances varying according to the fertility of the soil and the variety grown. It will probably be found that in our richer soils any variety given to much running will require at least 3 feet between the drills, and 14 or 15 inches between the plants in the rows, while other less lengthy varieties in poorer soils can be sown at much lesser distances. In any case it is as well to leave space between the rows to admit of the usual cleaning work with the Horse Cultivator. The seeds can be set by hand in the drills at a depth of 2 inches, and just covered roughly over with the foot. Within seven to ten days from planting, the seedlings should begin to appear on the surface, and then any spots which have failed to germinate can be re-sown. Thence onwards the ground should be constantly worked by ploughing and weeding three and four times, about the second time turning over the earth from the intervening space towards the plants to aid them in their natural propensity to bury their fruit, a process which is essential for ripening the crop. The plants can stand a good deal of dry weather, but must always be assisted by constant cultivation.

The harvesting, which should only be done in dry weather, presents few difficulties and entails very little labour or expense. A plough with a narrow mould-board is run along each side of the rows, and the soil around the plants loosened. The vines can then be lifted by hand, shaken free of earth, and left for a day or two to wither and cure in the sun, after which the nuts can be picked, graded and cleaned for market. Those pods which remain in the soil can be picked out on ploughing the land, or pigs can be turned in to grub about and feed on them. The hay too can be saved and used as a stock-feed.

At first the crops will most probably be very heavy and productive, but if the same ground be constantly put under monkey-nuts it will be found that the growth will

become less and less vigorous, and the yield smaller. But after all this is true of almost any crop, and it is not necessary to remind intelligent farmers that it is only by judicious rotation that the utmost can be got out of land that is constantly used. Like others of the Leguminosae family, the ground-nut certainly nitrogenises the soil. On the roots of the plant will frequently be found large nodules, which are the homes of various bacilli, thus enabling the plant to obtain from the air supplies of nitrogen, which to a great extent it deposits in the soil, and which if the plants be ploughed in green do incalculable good for the succeeding crop. It may then be regarded as something of a renovating crop, in that it replaces nitrogen, that great essential which is found to be lacking in old and exhausted lands. As already mentioned, in the United States it is used as a rotation crop after maize with most successful results.

The crop obtainable varies according to the conditions under which it is grown. In America it is estimated at about 40 to 60 bushels of 22 lbs. per bushel, though sometimes up to 100 bushels per acre have been obtained. It is certain that the climate has a considerable effect on the value of the seed. In hotter climates it is said the seed contains a greater supply of oil. West African nuts for example contain 50 to 55 per cent. of oil, while North American contain only 25 to 30 per cent. Without a doubt too the oil-contents of the seed fall short in poor soil, while the seed from soil new to the crop is richer than that from old sites, from red sandy loams than from clays. Moreover on un-irrigated lands it is proved that the yield is richer in oil than when produced under irrigation. Want of lime causes empty pods, while rich nitrogenous manures on the other hand, though promoting growth of the vegetative parts, do not stimulate the seed formation. Soft earth is desired for the burying of the seed, and the practice of earthing up is an aid to that end. On hard soils the pods die off whenever they fail to penetrate the surface.

The ground-nut was originally a product of Brazil, and was probably introduced into Africa by the Portuguese traders on the Guinea coast. It is known also to have existed long ago in Asia, being largely cultivated in India and in China. It was the scarcity of Olive oil which first brought these nuts to the front, and for a long

time West Africa sent large supplies to Europe. The opening of the Suez Canal let in India, and from that time an extensive trade in nuts took place between India and Europe. Later the Mozambique territories entered the competition, and soon began to export large quantities. An idea of the way in which the East Coast of Africa has taken up this crop may be gathered from the fact that there is at Quilimane an extensive soap and oil manufactory, which uses hundreds of tons of ground-nuts per annum, and yet the export of nuts to Europe is counted in its thousands of tons annually. More recent statistics are unfortunately not to hand, but in 1898 there were exported from the East Coast 16,172 tons at a value of £13 10s. per ton.

Locally there has not up to the present been any regular demand, and therefore the prices are scarcely a fair guide as to the value of the crop. The present price unshelled nuts per bag of 80 lbs. is 7s. to 9s., but the supply is strictly limited, and drawn mostly from small amounts traded from the natives. The natives of Africa have long grown these nuts, and consider them a good and agreeable food, so that there is no need for the most captious critic to pull a long face and speculate as to the probability of the plant succeeding in this climate or not, or even after the Chamber of Mines advertisement whether there is a market for the produce when grown. This is quite apart from the more ambitious prospect of the production of oil, or of export to centres where the oil is extracted.

In conclusion, a few words about the varieties may be of interest:—The various kinds have been roughly classified into “bunched” and “running” varieties. In the one the stems are erect, in the other prostrate, but ascending at the tips. Among the running forms the most typical is that commonly grown in Virginia. Its spreading branches may have a length of two feet or even more, and pods are borne on them almost to the tips. The “Spanish” pea-nut is an extreme of the other type, with several erect stems, and the pods crowded at the base—a condition imposed on the plant by the impossibility of thrusting nuts from the upper flowers into the soil. The Virginian variety, which on account of its relatively small percentage of oil, is most in demand for eating, is sold roasted in the streets of the American cities in great

quantities. In the old slavery days the seed was regularly carried as food for the negroes on the march or voyage, together with the sweet-potato. At the present time the Spanish peanut is largely grown in the United States and used by the confectioners in the making of sweets. The plant too is in favour as a forage. The African form is chiefly semi-prostrate, while on the Mozambique coast a rather small-podded plant is cultivated. Though any one kind may be found in any part, it will be noticed that its fertility and value gradually diminishes, but this can always be successfully met by introducing new seed from some other country, when the same soil and conditions will be found to produce once more good results.

---

### **Tobacco Lecture.**

---

EXTRACT FROM A LECTURE DELIVERED  
BY MR. VAN LEENHOF (TRANSVAAL  
GOVERNMENT TOBACCO EXPERT).

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The subject is, I venture to say, one of interest to almost every person residing in this country.

It is not my intention to deliver a lengthy lecture, for the subject of tobacco is not one that can be dealt with in a general way. To deal with the matter in anything approaching an adequate fashion, the subject must necessarily be divided up under almost countless heads, such as culture, handling of leaf, or warehouse work, manufacture, also the history, chemical, physiological, pathological studies, etc.

The production of different types of tobacco adapted to the many demands of the manufacturers, is one of the most important problems confronting the growers of this crop. The market grades are clearly defined and classified, according to the character and quality of the manufactured product. The value of the crop depends upon the ability of the grower to produce a type conforming most nearly to the market standard for each particular grade.

It has been demonstrated that there are certain well defined areas where the soil and climatic conditions are favourable to the production of types of tobacco, suitable for the manufacture of cigars, cigarettes and pipe tobacco, and these areas will produce profitable crops of the sort of tobacco when uniform types have been developed and established by careful breeding and selection.

New types must be developed which will more nearly approach the standard of the imported varieties, and possess their desirable qualities. This can doubtless be done by careful breeding and selection. The object is to present some practical suggestions to tobacco growers for the improvement of their crop by selection and breeding. The many varieties now in existence are supposed to have had a common origin, and the different types are the results of selection and hybridisation, either accidental or intentional. The purpose of the selection of a variety depends upon the use of the crop to the manufacturers; as for instance the qualities of aroma and flavour are important in filled varieties, but not so important in wrapper types. The general methods of seed selection, however, apply to all types and varieties. Tobacco is more highly specialised, and is grown under a more intensive system of cultivation than any other general farm crop. It is a well known fact that the tobacco plant is exceedingly sensitive and responds readily to soil and climatic conditions. Owing to the great influence of soil and climatic conditions, and culture methods on the yield and quality of the crop in areas adapted to tobacco growing, highly improved machinery and methods of cultivation must be developed by the growers in order to increase the profits from the crop.

From the fact that the tobacco plant is influenced in such a marked degree by soil and climatic conditions, this crop is a particularly striking example of the benefits to be derived from the selection of seed in districts where it is to be grown. It has been frequently observed that when a variety of tobacco has been grown in a particular region for a number of years, it undergoes a gradual change and produces a type peculiar to that region or locality. In most of these crops a small proportion is found which produce leaves most nearly conforming to the market standard for this class of tobacco. By saving the seed from these plants according to the methods of

selection, a uniform crop of the desirable type may be secured which will be adapted to the local soil and climatic conditions.

In view of the effect of a change of conditions upon the character of the plants, it is important that the grower select his tobacco seed on his own farm. In buying seed the grower has no evidence from the seed itself, as to the nature or quality of the plants which it will produce, and is liable to lose a crop owing to the use of undesirable seed. The careful selection and improvement of the type by the grower not only increases the yield and quality of the crop, but the reputation thereby acquired insures a high price and a ready market for such tobacco. Tobacco seed is known to retain its vitality for many years if kept under the proper conditions, but it has been demonstrated that the vigour of germination is reduced and the value of the seed impaired by age, even though the circumstances are very favourable. Owing to the possibility of the failure of a crop, due to unfavourable seasons, or the destruction of the plants by storm or other accident, enough seed should be selected from every successful crop to produce plants for two or three seasons. The yield and quality of the crop will certainly deteriorate where the best plants are topped, where proper attention is not given to the principle of seed selection, and where the injurious effects that may follow from cross-pollination in the tobacco plant are not recognised.

In all samples of tobacco seed there is great variation in the size and weight of individual seed. Owing to their small size making it extremely difficult to distinguish the large and heavy from the light seed, except by close examination, there has been little attempt by growers to separate the different grades before sowing the seed beds, as many of the weak and undesirable plants always found in the beds may be attributed to this cause. Careful comparative tests of light and heavy seeds have proven that the best developed and most vigorous plants are always produced from the large, heavy seed, while the light seed produce irregular and undesirable plants. The growers usually sow three or four times the amount of seed bed needed, in order to secure enough plants of sufficient size to set out their fields at the proper time for transplanting. If heavy seed is used, this extra expense for seed beds can be considerably reduced, and more hardy

and desirable plants secured. The most satisfactory means of separating the light from the heavy seed is by using a current of air. From the time the young plants first appear in the seed bed until they are ready for transplanting, they show great variability in type and vigour of growth. When the plants have reached the proper size for setting out in the fields, the characteristic shape and comparative size of leaf may be determined by a careful study of the plants in the seed bed. At this time a definite selection of the most vigorous plants will improve the uniformity and increase the yield and value of the crop. The time for transplanting is a busy season for the grower, and in order to secure enough plants to set out as great an area as possible, all the plants of the necessary size are usually pulled without much attention to the variation among the young plants. The suckers produced on the different plants were found to vary in a similar manner to the number of leaves and other characters. In selecting individuals free from suckers it was found that the crop produced from these suckerless plants produced proportionately few suckers, while the plants selected with a large number of suckers transmitted this suckering habit uniformly to all their progeny. The size of leaf it has been found can be controlled by the selection of seed plants having the desired size of leaf. In all varieties of tobacco there is considerable variation in the time of ripening of the individual plants in the field.

The first step in the selection of tobacco is a careful study of the individual plants in the fields from which the selections are to be made before any plants are topped. The differences in quality of the product of the individual selections can be determined only by careful study of the cured leaves. The type or general form of the plants, the number, uniformity and shape and size of the leaves, number of suckers, the height and time of ripening of the plant, should be kept in mind, and the plants carefully examined with regard to these points. It is of the greatest possible importance that a grower have a clear and well defined ideal of a perfect plant best adapted for the purpose for which his crop is grown, and that the individuals selected as seed plants conform as nearly as possible to the ideal type. The tobacco plant is naturally self-fertile, but is frequently cross-pollinated by insects or other agencies carrying the pollen from one plant to

another. The variation in types and individual plants within the variety may for the most part be attributed to cross-fertilisation, and uniform types and plants can only be secured by preventing this crossing.

A simple and effective means of protecting the tobacco flowers from the injurious effect of cross-fertilisation is by covering inflorescence with a paper bag before the flowers are ready for fertilisation. This bag should be made of light but strong and durable paper, which will not injure the plant or flowers by bending the plant out of its natural position, and will not be easily torn or destroyed by rain or wind storm. The centre cluster of flowers in the seed head should be used for seed production, and all suckers and other seed bearing branches removed before the bag is applied. The plants should be bagged before the earliest flowers begin to open, and the bag moved up the stem every two or three days as the plant increases in height, in order to allow sufficient space for the development of the seed head. After the capsules have turned brown, indicating maturity, the seed stalks should be cut and hung in a dry place where there is a free circulation of air, and allowed to remain until the seed has become thoroughly dry.

The development of disease-resistant strains will probably become one of the most important features of tobacco breeding. In the case of a root disease attacking the Sumatra variety of tobacco, individual plants were found resistant to this disease. In the affected fields most of the plants succumbed, and only a few plants produced marketable leaves. The seed from the resistant plants was saved under bags, with the object of securing a resistant type of this variety. The progeny from these plants were resistant to disease, and produced a profitable crop of tobacco, whilst the plants grown from the seeds not selected were as seriously injured as in the previous year. Similar cases of resistance have been observed in Porto Rico and other tobacco regions. This evidence, considered in connection with the production of disease-resistant strains in the other crops indicates the possibility of breeding types of tobacco resistant to many of the common tobacco diseases.

The production of uniform types of established varieties of tobacco can only be secured by using the seed from self-fertilising plants, but new strains of varieties adapted

for special purposes can be produced most readily by crossing different varieties. The production of new types of the hardy native varieties by crossing with the standard imported varieties may result in the development of new races combining the hardiness and yield of the native with the desired qualities of the imported tobacco. The experiments of Darwin show that while crossing within a variety is detrimental, the crossing of different varieties produces seed of stronger vitality, more rapid growth of the young plants, earlier flowering of the matured plants, and a greater yield from the self-fertilising seed. The selection of seed from the desirable individual plants will doubtless result in the general improvement of quality and increase in yield. All other crosses showed similar results, and lead to the belief that by judicious blending of the foreign and native varieties it will be possible to produce strains possessing the desirable qualities of imported tobacco, together with the hardiness and yield of the native varieties.

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## Land Drainage.

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*(Contributed.)*

It will interest readers of the article on "Land Drainage," by J. Cameron, which appeared in the last Journal, to know that the system of drainage there advocated has been attempted by at least one farmer in this country with very marked beneficial results.

The farm Hillingden, owned by Messrs. W. and W. H. Long, in the Selukwe district, situated east of the little Umtebekwe River, is right on the granite formation. To the casual observer much of the soil appears sandy and poor, and liable to be very swampy during the rains.

Fields for cultivation have been laid out round the base of a granite hillock, out of which there is a considerable soakage of water. This rendered a considerable portion of the land unfit for cultivation during the wet season, even when there was only a moderate rainfall, and repeated failures were experienced. To remedy this defect an attempt was made to drain a small portion of the land, and drains from 18 inches to 2 feet deep and 12 inches wide were cut in the direction of the natural drain-

age running the whole length of the land. Rough granite slabs about 6 inches high, of which an unlimited supply was at hand, were placed on edge and a small slab placed on top, thus forming a kind of culvert, and on this dry grass or scrub was packed, and the excavation filled in with earth. This made a drain which was comparatively cheap, easily constructed, and most efficient in drawing off any surplus water from the soil.

The water drawn out of the soil flows into a reservoir constructed at the base of the drains, and is utilised for irrigating the vegetable garden and orchard, so the drains answer the double purpose of drawing out superfluous water from one section of the land, and making it available for irrigation purposes on another.

This experiment had so marked an effect on the health and vigour of the crops grown on the drained land, nearly doubling the yield of mealies, that it was decided to extend the operation, and over 6,000 yards of drains have now been constructed on the land under cultivation.

In Messrs. Long's experience the cost of constructing these drains is well repaid by the improvement in the land which appears to be made more fertile and capable of growing heavier and better quality grain crops, and rendered suitable for growing excellent crops of bright tobacco and potatoes.

There is much land in the country on the granite formation which is spoken of as valueless, but which might be converted into good arable land by adopting methods of drainage advocated in the article above referred to, and which are as sound in practice as they are in theory, as has been amply demonstrated on Messrs. Long's farm Hillingden.

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### **Cowpeas.**

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Up to the present the cowpea is practically an unknown plant in Rhodesia, but so great are the advantages of the crop, according to the experiments made in America, that we venture to reproduce extracts from a report issued by the Instructor in Agronomy to the University of Missouri. Inter alia he remarks that wherever the merits of the plant have become recognised, the Cow-

pea has for several years been one of the leading crops of the rotation. Where a farmer has planted cowpeas for two or three seasons, he is generally enthusiastic in his recommendations of the plant, and considers the cowpea almost indispensable to his system of farm management. It can be safely said to have passed the experimental stage, and is already becoming a very important factor in agriculture.

## THE COWPEA PLANT.

The cowpea belongs to the general family of leguminous plants, and is closely related to the Lima Bean of the garden. Contrary to its name, the cowpea is in its botanical relations of nearer kin to the bean than to the pea. In appearance the cowpea resembles the bean, and like it is an annual very sensitive to frost. The plant varies in habit of growth from an upright, bushlike form, to a mass of low trailing vines many feet long. The form of the plant varies not only with the variety, but also with the length of the season, soil, moisture and climatic conditions. It is the nature of the plant to adapt itself readily to the environment in which it is placed. Some varieties which produce a small amount of vine on a soil of average fertility will, when planted on a rich soil, vine profusely. The amount of rainfall during a season will largely determine the extent of vining as well as the quantity of seed produced. These modifications of the plant, due to conditions under which the peas have grown, have given rise to many varieties. The blossoms vary in colour from white to purple, while the pods, usually of a light straw colour, are in some varieties a brown, purple, or dark colour, varying in length from five inches to nearly a foot. The size and colour of peas vary greatly. The peas of some varieties are more than twice the size of others, and the colour ranges from white to jet black. Some varieties produce seed which so completely fill the space in the pod that they are so crowded together as to flatten the ends of the peas where they touch one another.

The root system of the cowpea is rather extensive, and consists of a number of irregular shaped roots which divide into many fine rootlets. The latter find their way deep into the subsoil, and enable the plant to draw freely upon the sources of food and water, even in a dry season.

The smaller roots found in the upper layers of the soil bear the tubercles which are always found on plants of the best development. They have been found to penetrate readily to a depth of four feet. This habit of growth is responsible for the remarkable freshness and vigour with which the development of the plant is attended. Even in the hottest and driest weather the well-established cowpea plant will thrive as will no other crop on the farm.

### SOIL.

The cowpea is adapted to almost all types of soil. There is no forage plant known to the corn belt that can be grown so successfully on such a variety and such diverse conditions of soil. The plant has long been known for its ability to extract plant food from soil infertile and almost barren for other crops. It is this characteristic that renders the cowpea a sure crop on all kinds of soils. Like most other plants, cowpeas do best on a good soil, but the fact that they will grow well on a worn out soil has given the plant prominence as a soil renovator. For many years peas have been grown for the purpose of bringing up the fertility of thin land, and the expression regarding soil "too poor to grow cowpeas" is a significant one, and is indicative of the thrift of the plant. From rich loams and alluvial deposits to thin uplands, the cowpea will make a profitable crop. The plant is better suited to an open friable soil, somewhat sandy than for heavy clay soil. An open soil allows good aeration, and promotes bacterial activity which is necessary for the best development of the plant. Such soil produces the cowpea to perfection. Heavy clay soils will not produce a good crop the first year, but the peas will succeed much better the next year, as the root systems seem to penetrate and enliven the soil. A very rich soil is not conducive to the best results with cowpeas. While a great growth of vines is produced, the yield of grain is often small, and the vines growing in such profusion that they are very difficult to cure. A soil of moderate fertility will in most cases produce the most satisfactory results for both hay and peas. Soil that is worn out or poor will produce a crop that is short in production of vine, but will generally yield a good proportion of seed. Cowpeas will not grow on wet soil. In this respect they are similar to other le-

gumes, and for the same reason that a wet soil will not allow good soil ventilation, so necessary to plants that use nitrogen from the air.

It is a well-established fact that some legume must be used in the rotation if the soil is to yield the most profitable returns. The legumes, as clover and cowpeas, are the only crops grown in a short rotation that are able to draw upon the nitrogen of the air for maintenance, and at the same time store up that valuable element of plant food in the soil for other crops. These crops not only increase the fertility of the soil by increasing the store of nitrogen, but also at the same time the organic matter content of the soil is increased. The crop producing capacity of a soil is largely determined by the amount of organic matter present. The growing of clover or cowpeas supplies these constituents as does no other crop grown on the farm. To maintain properly the state of fertility necessary to produce maximum crops, clover or some such crop must be grown. Also the live stock farmer must endeavour to produce enough protein to satisfy his demands, in other words, to bring about the best results in feeding. The most profitable stock farming cannot be carried on without the annual production of some legume. Thus the failure to grow clover (or some substitute) is a loss to the farmer in two ways, the gradual depletion of the soil and the lack of the proper kind of feed for stock. The problem of soil fertility is the most fundamental in farm management, and upon it rests finally the material welfare of every farming operation. Such conditions have a solution in the growing and the proper utilisation of the cowpea. It is not claimed that the cowpea should take the place of clover, but peas may be used to bring up the soil so that it will grow clover, or peas may be substituted for clover where the soil is not naturally adapted to it. That the cowpea can be made to fill in a large measure the office of red clover, both as a soil renovator and as a feed, it is the purpose of the following pages to show.

## METHODS OF UTILISING COWPEAS.

When properly cured, cowpeas make excellent hay. Few farmers realise that cowpea hay has a feeding value nearly equal to lucerne, and fully equal to the best of red clover hay. It is equally as profitable a feed as lucerne,

and when fed to dairy cows or growing animals will produce as good results. Work animals can be maintained on cowpea hay with the addition of but very little grain. The chief value of cowpea hay lies in its large percentage of digestible protein, as is shown by analysis, and which has been verified by numerous feeding tests. It will be noted from the table here given that cowpea hay contains practically the same amount of digestible protein as lucerne, but considerably more than red clover. The following data, taken from Henry's "Feeds and Feeding," show the comparative feeding value of the more common grain and hay products.

### DIGESTIBLE NUTRIENTS FROM DIFFERENT CROPS.

Material.	Protein.	Digestible Nutrients per 100 lbs. Carbo- hydrates.	Fat.
Cowpea Hay ... ..	10.8	38.6	1.1
Clover ... ..	6.8	35.8	1.7
Lucerne ... ..	11.0	39.6	1.2
Timothy ... ..	2.8	43.4	1.4
Wheat Bran ... ..	12.2	39.2	2.7
Maize ... ..	7.9	67.7	4.3
Oats ... ..	9.2	47.3	4.2
Cowpeas (grain) ... ..	18.3	54.2	1.1

To supply the lack of protein food on the farm commercial feed stuffs such as bran are often bought. Bran has but little greater feeding value than cowpea hay, and costs more. An equal quantity of the two feeds will produce nearly the same amount of milk energy or growth. For dairymen and stock feeders who are obliged to buy bran, considerable expense may be saved by using cowpea hay as a part of the ration. Much land is not adapted for the growing of lucerne, and that valuable feed is an expensive item that might be readily eliminated by substituting cowpea hay.

### COWPEAS FOR PASTURE.

The cowpea on account of its habit of growth is not well adapted for a strictly pasture plant. Yet peas do furnish a pasture crop for a brief time of the year when such forage can be used to the best advantage. All animals relish highly the succulent and nutritious forage.

Reports from practical farmers show that good results are obtained by pasturing peas with any kind of live stock. If peas are sufficiently mature, frost will not greatly lessen the feeding value of the vines. At that stage of maturity when many of the pods are yellow, and before any of the leaves fall, is best to begin pasturing. If stock is turned on before the pods have reached full size the plants are much more easily wasted by trampling, and further, the forage has not its full feeding value, because it is too watery. Cowpea vines that have attained their full growth are not so likely to cause bloat in sheep or cattle. The most common practice is to hog them down. This may be done where peas are sown alone, or where they have been planted in corn. In the latter case the hogs have a full fattening ration and do exceptionally well. For young hogs the peas are a splendid feed, and but little grain is required to bring them to market weight. Hogs will eat off the mature pods first as they are the richest part of the plant, and leave some of the vines, especially when dry, so that cattle or sheep may be used to pasture off the more bulky vines. Sheep may be pastured on peas in the same way as hogs, and will clean up every vestige of the plant. Dairy animals show the effect of such pasture in a much increased flow of milk.

One advantage in using cowpeas for pasture is that a large amount of high class feed is provided the animals without the expense of handling. Another is that the soil is not only benefitted by growing of cowpeas, but the waste vines, and the droppings from the animals are left on the land. The vines that are not eaten are not wasted, as they are valuable manure. The weather at the time of year when cowpeas are usually pastured is such that the ground is rarely injured by trampling. If cowpeas are not pastured too closely they will make considerable after-growth in a favourable season. Where the primary object in sowing peas is not soil improvement, it will be found more profitable to pasture off the vines or take them off for the hay rather than plough them under.

### COWPEAS FOR SOIL IMPROVEMENT.

The growing of cowpeas has a marked influence on the productive capacity of the soil. The beneficial effect is due to the increased amount of available plant food in

the soil and to its improved physical condition. The cowpea, like red clover and other legumes, has the power of taking nitrogen from the air by means of the bacteria which live on the roots of the plant. This supply of the element nitrogen serves to increase greatly the growth of the plant, and at the same time leaves the soil richer when the crop is removed. The roots of the cowpea penetrate rather deeply into the sub-soil and enable the plant to feed upon the mineral food that is not readily extracted by other crops. These mineral compounds, phosphoric acid and potash, thus gathered from the depths of the soil are, when the plant decays, left in an available form near the surface to be utilised by the more shallow-rooted crops. Further, the decomposition of organic matter in the soil tends to render soluble the mineral elements, and to increase its capacity for holding moisture. The root system of the cowpea has the effect of making more loose and open the soil layers, and to promote aeration and drainage. The growing of cowpeas may be said therefore to increase the productive capacity of the soil: (1) By increasing the supply of nitrogen; (2) By making available the mineral compounds of phosphoric acid and potash; (3) By improving the physical condition of the soil.

### COWPEAS FOR GREEN MANURE.

Cowpeas are of marked benefit to open sandy soils where clover will not grow. These soils have little water-holding capacity, are deficient in organic matter, and the nitrogen is easily lost by burning out or leaching. A very considerable increase in yield may be expected from this class of soil when sown to cowpeas. The thinness of the soil will determine whether or not a green crop should be ploughed under. After the first crop the vines may be taken from the land and the stubble followed by grain.

There are many stiff, clay soils that may be greatly improved by the proper use of cowpeas. The first year the crop of peas may be light, but the second year it will be heavier.

On land producing good crops the object should be to keep the soil in such a condition that the yield may not only be maintained, but even increased from year to year. With the proper management this is within the limits of

possibility on every farm. The constant growing of grain crops without clover or cowpeas soon depletes the soil of its available nitrogen and the amount of organic matter is greatly lessened. It is the organic matter that promotes nitrification, and also gives the soil an enlarged capacity for retaining moisture.

### INCREASE IN YIELD OF CROPS AFTER COWPEAS.

The increase in the yield of crops after cowpeas will depend largely on the character of the soil. A rich soil in good tilth cannot be expected to show so much gain, but a fertile soil in a poor physical condition or a poor soil, even in a good physical condition will always be materially benefitted. Where a soil is both thin and in bad tilth two or more crops of peas will have to be grown in order to correct these conditions and to get a marked increase in the yield of grain. On soils of average fertility, the ploughing under of the entire crop is not attended with so marked an increase over the yield from land from which the peas have been harvested, as to justify this expense. Under such circumstances the vines are worth more as a feed than they are as a manure, the roots and stubble being sufficient for the present requirements of this class of soils. Peas should be ploughed under, therefore, only when the soil is decidedly lacking in nitrogen or organic matter, whenever the peas should be used as hay or pastured off. In the latter case a large percentage of the fertilising value of the peas is returned to the soil in the animal manure.

### VARIETIES OF COWPEAS.

There are more than 50 varieties of cowpeas. These differ widely in their habit of growth, development of vine, yield of seed and length of time required for maturity. From their habit of growth two general classes are recognised; those varieties of upright form known as bunch varieties, and those with low, widely spreading vines known as running varieties or trailers. The cowpea is readily influenced by environment; some varieties which grow upright on a thin soil, when placed on rich land have a tendency to become a rank growing trailer. Also the amount of moisture and earliness of planting will often cause variation in the form of the plant. Yet

these varietal differences are such as to have an important bearing upon the selection of varieties to be grown for various purposes. The failure to select the proper variety or to understand the conditions under which the plant may vary is often the cause for unsatisfactory results to the grower. The best variety to sow depends upon the purpose for which the crop is to be grown and upon the soil. If hay is sought, it is desirable to select a variety of upright growth, uniform maturing habit, that will hold its leaves well and bears a good proportion of seed. The fineness or coarseness of stems and number of leaves should also be given consideration. A variety that has a tendency to blossom until late in the season after some of the pods are matured, or a variety that is subject to excessive after-growth following a period of wet weather, should not be selected for hay. Much of the difficulty in curing hay arises from the fact that the vines are not well matured or have put on an after growth.

The variety selected for pasture should vine moderately, grow late into the fall, and produce pods in abundance. Where the crop is to be hogged down less attention need be paid to the foliage, but a prolific seed bearer should be chosen as the peas are the richest part of the plant. For grazing purposes the variety selected should hold its leaves well into the season. When the prime object is green manuring for soil improvement, the variety that will produce the largest amount of vines is desirable.

## PREPARATION OF THE SOIL.

The seed bed for cowpeas should receive as thorough preparation as for corn. To insure prompt and uniform generation it is necessary to provide a warm, moist, mellow soil. Stubble land is sometimes disliked, but unless the soil is loose and moist the peas will not make a good stand. This practice cannot be recommended. A perfect stand is especially desirable where the peas are not to be cultivated, as weeds will interfere if the ground is not well covered. Cowpeas respond as generously to good treatment as do other crops, and it will be found to pay to put the soil in a good condition of tilth before sowing. Moreover, soil from which has been removed a crop of cowpeas is in as nearly perfect condition as it is possible to make it for seeding to corn, lucerne or grass.

## PLANTING AND CULTIVATION.

The method of planting peas will depend upon whether they are to be cultivated or not. Where cultivation is intended they may be planted in rows varying in width from 20 to 44 inches. A common practice among farmers, and a method we have successfully used, is to seed with an ordinary mealie planter with drill attachment straddling each alternate row, and thus making the rows 22 inches apart. The field is drilled as for mealies, placing the peas 6 to 10 inches apart in the row at a depth of about 2 inches or at a depth sufficient to insure plenty of moisture. This method of planting requires about 6 to 8 quarts of peas per acre, so that a bushel planted in this manner will sow as much as 4 or 5 bushels broadcast. However, the saving in cost of seed is about equalled by the cost of the subsequent cultivation.

Under ordinary conditions peas will come up quickly and cultivation may begin early. The plants are very tender when they first appear above ground, and are broken easily, so that care must be exercised in working among them. At this time neither harrow nor cultivator should be used, as they will seriously injure the plants. A cultivator may be used after the plants have grown several leaves. It sometimes happens that ground planted to peas is packed by heavy rain immediately after planting. In such a case a harrow should be used to break the crust, so that the peas may come through easier and better. Unless the peas have germinated and are very near the surface little damage can be done. The ordinary implements used in mealie culture will be found satisfactory in cultivating peas. In fact the cultivation of peas should be essentially the same as that for corn. Two or three cultivations at intervals up to the time the blossoms appear will usually be sufficient. Little good is done by cultivating after the plants have begun to vine. Late cultivation will cause peas to vine more and mature later. The soil should not be stirred while the plants are wet with dew or rain, as the leaves are then readily broken off, and it appears that soiling the foliage encourages the development of a leaf disease.

Peas sown with a wheat drill will make a hay not so coarse as that from cultivated peas. Further, the land is left more compact and level, so that the crop is easier to

cut and less dirt is raked up with the hay. Cultivated peas generally make a better yield of hay, set more peas, and is the more profitable method of sowing where the area of the crop is limited, and where the peas are sown as a main crop for the summer. But where a large acreage is sown, non-cultivated peas are grown to the best advantage.

When peas are sown in mealies at the last cultivation they may be put in drills in two or three rows in each mealie row, or they may be broadcasted by hand and cultivated in. Broadcasting by hand in the open ground cannot be recommended. As a result of testing different methods of sowing it has been found that peas broadcasted by hand and harrowed in, seeded at the rate of one and a half bushels per acre, failed to produce a crop worth cutting. Adjacent plots sown with wheat drill produced nearly two tons of cured hay per acre. Where sown broadcast the lack of uniform depth of covering and the subsequent poor stand allowed the weeds to outgrow the peas.

The difference in yield of cultivated and uncultivated plots seems to be clearly in favour of those not cultivated. The saving of seed and the slight increase in yield when peas are cultivated are generally offset by the expense of cultivation, so that there is but little difference in the real cost of the two methods of sowing.

For ensilage peas are sometimes planted at the same time with mealies. When the corn is at the proper stage of maturity for silage, the peas have made sufficient growth almost to envelop the mealie stalks. The entire crop, peas and mealies, is then cut and stored in the silo. Peas for silage may be grown separately from the mealies and the silo filled with alternate layers of peas and mealies. Peas alone do not make first-class silage. Another method of utilising mealies and peas planted together is to pasture the peas and stalks after the mealies are reaped, or to cut both mealies and peas and place in shock for winter feeding.

### TIME OF PLANTING.

The time to plant will depend upon the purpose for which the crop is sown. If the peas are intended for a main crop on the land to take the place of mealies, they

should be planted not earlier than two weeks after the usual time for sowing mealies. Early planting of peas causes a heavy growth of vine with an increased tendency for the vines to run, and in some cases the yield of seed is considerably lessened. Rather late sowing tends to promote seed production and lessen the growth of vine. Peas are very sensitive to cold wet soils, and the seed will rot very readily when sown under these conditions.

## HARVESTING AND CURING COWPEAS.

The methods employed in harvesting and curing of cowpeas are not unlike those practised with lucerne. The readiness with which cowpea hay is cured depends largely upon the maturity of the vine and upon its habit of growth. Both harvesting and curing are generally facilitated by the use of varieties upright in growth and of uniform maturing habit. The ordinary mowing machine will readily cut and save the entire plant of upright growth, and for the reason that vines of this character do not lie so closely together is of advantage in curing. Vines that bear a large percentage of pods are cured with less difficulty than those of excessive growth. The length of time required for curing will depend upon the maturity of the vines, thickness of planting, rankness of growth, and upon the weather. If the vines are ripe, as indicated by the colour of the leaves, the hay can usually be cured in about 48 hours under favourable weather conditions. If the vines are green and in vigorous growth when cut they may not cure at all, especially if the crop is very heavy. The greener the vines the greater the liability from loss during bad weather. When vines are well matured when mown, and are well cocked after lying a day or two, they will endure several days of rainy weather.

Cowpeas should be cut when the pods are full-grown and when a considerable number of them have turned yellow. At this stage none of the leaves have dropped, and the plant has practically attained its growth. Begin cutting in the morning as soon as the dew is off. Leave in the swath until the exposed portion is well cured, but not dry enough to crumble and break. The vines should then be raked into small windrows. When the upper side is well dried, the windrows should be turned over. The

hay should be thrown into cocks before the leaves are dry enough to break, preferably cocks as high and narrow as will stand well, in order to admit circulation of air. Time may be saved if the windrows are bunched just before cocking. If the peas are well matured and the ground dry, they may be raked as soon as well wilted and not turned, but cocked at once. If part of the cocks nearest the ground is slow to dry, they may be turned over for a few hours before hauling begins, so that the under portion may be exposed to the sun, and the process of curing hastened. Cocking need not be resorted to if there is favourable weather, but in any case this method of curing will be found to produce a sweeter, brighter hay than when left to scorch in the sun. Care must be taken that the hay does not become too dry before handling as much of the best feeding value of cowpea hay is lost when the leaves are lacking. When cured, the pea hay may be placed under roof or stacked.

Cowpeas are difficult to cure unless properly managed, but with strict attention to maturity of the plant, and to weather conditions, good results are obtainable.

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## **Rhodesian Products.**

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The British South Africa Company have received from Messrs. Kelsall and Kemp, Limited, of Rochdale, an addition to the Company's Exhibition of Rhodesian products at 2, London Wall Buildings, E.C., in the form of cloth made almost entirely from Rhodesian wool, a consignment of which was recently sold on the London Wool Exchange at prices ranging from 9d. to 1s. 6½d. per lb. The wool came from one of the farms of the Inyanganga district of Rhodesia, where there are large flocks of merino sheep.

Messrs. Cox Bros., of Dundee, Scotland, have sent samples of yarn spun from Rhodesian Jute, grown near the Victoria Falls; there is little, if any difference, between the Rhodesian yarn and yarn spun from Indian Jute.—*Commercial Intelligence.*

## Features in Soil Formation between Mazoe and Hartley.

By J. CAMERON.

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In relation to the value of soils for farming purposes some inquiry into the history of soil formation as to how the mass comes to be what it is, provides an interesting and useful study.

Starting from the Tataguro valley at Springvale and proceeding southwards to the Hunyani river, a broad belt of agricultural land is embraced, the greater part of which is already taken up and occupied by farmers.

The outstanding feature belonging to this belt or area is the banded ironstone running through parallel to the granite. The direction of these hills of banded schist runs north and south, while between them and the granite on the western side broad open spaces intervene where Felsites, Gneiss and metamorphic schists frequently occur.

On the eastern side of the ironstone range eruptive masses of granite are met with, together with altered schists and granitoid felsites as the chief rock masses.

These banded ironstone hills present a rounded outline showing as having undergone extensive weathering and denudation. Indeed the greater part of the mass composing all the soils embraced within the area is accumulations from the disintegration of these ironstone schistose rocks.

Large level areas such as the Gwibi flats are spaces filled up to the level with this weathered material, the hills themselves having been worn down to become only low eminences.

Towards the Mazoe direction the country is much broken up with masses of schist in various stages of metamorphism. The valleys between and among these low hills are beds of deep alluvial formed from the material weathered on the overlying hills. These soils are thus generally a mixture derived from various rocks besides ironstone and granite, and are correspondingly fertile from the inclusion of various felspathic rocks. To this also must be added the friability and porosity given to these valley bottoms through the inclusion of a good deal of silicious sand contributed by quartzites.

Throughout the whole belt of soils a remarkable feature pertaining to them is the friability and non-resistant character in tillage operations.

Even now at the height of the dry season, the breaking up of land for the first time is carried on with obvious facility and to good purpose.

Ordinary soils in the same state of dryness at this season of the year, and containing the same amount of clay are generally impenetrable to the plough.

But here both the red and black soils possess this friable texture, which in part may be attributable to the complete coagulation or flocculation of the clay particles. In part it may be due to the absence of colloid matter in the clay, as even one per cent. of colloid clay renders a soil unworkable when in a state of complete dryness.

Some part of this absence of tenacity may also be due to the large amount of humus generally present. In a clay loam the presence of organic matter or humus tends to increase friability and openness of texture, while in a sandy soil humus has a binding effect. From the Gwibi onwards towards the Hunyani, open and extensive stretches of agricultural land prevail. Although banded schist is still the chief soil forming rock, yet the granite becomes more and more in evidence, together with other silicious schists and sandstones, thus giving a more sandy nature to the land.

These broad stretches of land are of a highly fertile character, and lend themselves readily to cultivation. At the end of the slopes, on the bottom levels, humus has accumulated to a considerable thickness, and the natural growth is most luxuriant.

In the rainy season these parts are subject to become waterlogged, and their cultivation on that account is unprofitable. Drainage, however, will render all such soils highly productive when the interminable crop yielding power attaching to them will be developed and turned to account.

The slopes of all the hills are for the most part rocky, and many are bare of timber of any kind, a circumstance no doubt due largely to the unmitigated evils attending grass fires.

Strange to say on the very top of the hills there is in most cases a covering of good soil whereon the most succulent grasses grow luxuriantly, and on which stock delight to pasture.

It may be remarked that on a great number of these round topped low lying hills the remains of stone built kraals are still conspicuous, thus furnishing evidence that at no very remote date a former race of people had dwelt in this fertile district.

These large stone built kraals had without doubt been built for the accommodation of stock, towards the support of which the whole region is naturally most excellently adapted—being not only well watered, but possessing a soil which carries the most succulent and nutritious grasses.

The hill on the Gwibi side of the railway line at Stapleford is a fine-grained white sandstone.

This sandstone had covered at one time a very wide area, and its disintegration has no doubt furnished a considerable portion of the soil in this quarter, and with highly beneficial results from its admixture with the softer schists.

The ironstone formation continues on to the Bulawayo railway line. The space between these hills and the granite outcrops to be seen rising up at some distance westwards is of a highly fertile description from the inclusion of basic schists running into the granite, while in the easterly direction towards Salisbury, gneiss and altered schists contribute in securing the same high grade of fertility.

Passing through a granite belt the banded ironstone hills appear again at Stonehurst. There again a broad area of highly fertile land lies between these hills and the granite. Within this area a formation of conglomerate occurs of a soft nature. It is easily disintegrated, and no doubt has contributed in giving the great depth to be found in the soil at Stonehurst and Summerby.

From thence on to the Hunyani granite and banded ironstone occur alternately, but with little of any other kind of rock intervening.

From the configuration of this part of the country the area of agricultural land is very limited. The valley of the Hunyani is all of granite only, and the soil partakes of a stiff clay nature in the bottom, while the top is chiefly sand.

Passing across the Hunyani and proceeding onwards towards the Hartley direction the same class of granite country prevails until the farm Kent is reached.

Here a stretch opens out again between the banded ironstone hills and the granite, the intervening space being occupied by a formation of quartzite, besides felsite and other basic rocks showing outcrops. This formation has contributed in giving fertility to a large tract of land.

Throughout the whole area embraced from the Tata-guro valley to Kent farm, a distance of about fifty miles, a very close relation exists between the particular rocks and the nature of the soils found on each individual farm.

It thus happens that all the farms possess a considerable variety of soils within themselves, according as banded ironstone, granite, gneiss or other metamorphic schist predominates, owing to proximity or configuration. Again on mostly all the farms the iron becomes oxidised in different forms, the per-oxide Goethite being frequent. This oxide yields the bright yellow colour to certain lands.

On every farm there is a selection of soil available to suit a great variety of crops. As yet mealies are the staple crop, but they have no demand for any special kind of soil except its richness.

Already, however, special parts of farms are taken advantage of in the production of certain crops, such as tobacco, Japanese millet, potatoes, pumpkins, lucerne, oats, etc., while every farm has its orchard. Then wheat is only let alone until a rust resisting strain can be found.

Among all these crops, tobacco is the most fastidious as regards its choice of soil. While mostly all the farms possess a certain amount of land suitable for growing tobacco, there are few that have any great breadth of the type required.

There are two classes of tobacco soil; one is composed mainly of fine sand—derived from granite and gneissoid rocks. The other class is a yellow loam derived from banded schist, the iron being in the per-oxide as Goethite, and mixed with a considerable portion of quartz sand.

Towards the Mazoe direction the latter type prevails. On a great many farms this Goethite occurs giving the soil a light yellow colour. When in the vicinity of any silicious rock, such as quartzite or granite, which provide the sand, a highly suitable soil for tobacco growing is thus furnished.

The soil at Stapleford is of this description, the yellow ground being mixed with the fine grained sand coming

from the hill adjoining. The surrounding farms have all more or less soil of the same description. The Stapleford soil has already established its excellence for the purposes of tobacco growing.

The other typical tobacco soil occurs at Warwickshire, on the Hunyani. Tobacco is here grown on a large scale from a soil derived directly from the granite. It is a sand of uniform texture more or less fine.

At Kent under the same management some miles further south, where about 300 acres are under cultivation for tobacco, a large part of the soil is also a fine sand derived partly from granitoid felstone.

The banded schist formation occurring also on this farm, a mixture is thus formed with the granite and other felspathic rocks whereby a soil of outstanding excellence is furnished for the purposes of tobacco growing. This type of soil occurs on many other farms to a greater or less extent, and both the foregoing classes have many intermediate varieties.

Throughout the whole stretch from Springvale to Kent no outcrops of lime are manifested, either calcite, limestone, or dolomite. Hence the importance to the fertility of the soils generally through the incorporation of the felspathic rocks among the soil-forming materials.

In the Tataguro valley there are deposits of lime that evidently owe their existence as coming from springs. This shows the presence of a lime bearing rock in that locality. There is a vein of diorite running through the locality, and it is probable that a vein of calcite or limestone may also exist.

The grass covered hills in the vicinity afford a very high class pasturage for stock. On many of these hills the general appearance of the pasture is very inviting for sheep farming.

In connection with lime a circumstance is to be noted that lime nodules occur on a great number of farms. At Summerby and at Kent, in the same relative situations, in deep black soil where ant heaps abound, these nodules are plentiful in scattered bunches both on the top and lying through the soil.

Beyond the fact of their presence there is nothing very clear concerning their origin—whether they are to be connected with a lime rock, or an accretion from a dissolved carbonate, or a secretion from some organic being.

The benefit to the soil, however, as these nodules presently exist is not very obvious, but if ground and distributed, their value would be brought out.

In those parts of the country where granite only is the prevailing rock, such as along both sides of the Hunyani eastwards, the soil is too coarse grained for tillage purposes, even where the areas are clear of outcrops and boulders.

In common with all granite soils the valley bottoms are on a layer of fine clay derived from the weathering of felspar, and consequently where the soil otherwise would be good it is more often boggy and waterlogged. Over considerable areas also the iron is in a partially oxidized state lying amongst this clay, and a hard pan is the result and whereon only coarse grass can survive.

The great breadth of the pasturage is of a coarse wiry nature and uneaten by stock. But certain strips along spruits, and here and there patches of luscious herbage appear that are much relished by stock, and whereon they thrive—maintaining a vigorous and healthy existence.

Provided the area is large enough that sufficiency of nourishing herbage is available, this granite veldt is admirable for grazing purposes, water also being abundant there. Any land that produces good grass such as stock delight to graze upon, is always fertile in itself for other purposes, only among these rugged hills the areas are too small for cultivation. Regarding granite veldt, it has been well remarked that cattle require something more than “a drink of water and a view of the grand scenery.”

In giving this rough outline concerning the nature of the country from an agricultural point of view, it is in the way of description rather than estimation of its farming value.

The greater part of the land touched upon is under actual occupation and farmed by a class of men full of enterprise and skill.

All their farming operations are well directed and conducted with energy and activity. Several of the farms comprise 600 acres under crop, a large number between three and four hundred acres, while even the first year of occupation 100 acres is cultivated with one plough.

Three furrow disc ploughs are the rule, the land being well managed in the way of cultivation, no better testimony being needed than the appearance of the lands and

the absence of weeds, besides the excellent crops produced.

It may at once be realised that the farming industry throughout this district is being established as a permanency and meant to stay. Capital is being freely laid out, both in buildings and machinery, including all the equipment necessary for carrying on the various branches taken up, whether mealie culture, tobacco or stock raising. On every single farm bricks are being made, and buildings are in progress or have already been built.

Modern and up-to-date farming appliances are everywhere adopted. Engine power is on many farms for driving purposes, in mealie shelling, grinding, pumping water, etc. Steam traction ploughing is introduced on one farm. Indeed steam ploughing is in contemplation on a large scale on several farms. Where, as at Kinvara, a magnificent slope stretching to the Gwibi, a furrow can be drawn for two miles without touching a root or a stone, remarkable facilities are given for this method of cultivation, and several other farms have similar inducements.

The culture and curing of tobacco is making rapid strides towards becoming one of the most important industries connected with farming.

On the B.S.A. Tobacco Co.'s properties at Warwickshire, and at Kent, flue curing barns have been erected capable of dealing with the very large quantities grown on the extensive acreage under tobacco on these farms.

Both competency and initiative skill have been manifested in overcoming all the obstacles inseparable from a new undertaking in a new country.

At Crowburgh, where the Cotton Syndicate are conducting operations, very substantial flue curing barns have been erected.

The well-known "Stapleford" brand of cigarettes as grown and dried on that farm has already achieved very wide celebrity. The greatest credit is due to the owner of that establishment for thus bringing through his own efforts a local industry into such prominence.

Year by year tobacco growers are increasing their acreage, while still a greater increase is taking place through the larger number taking it up.

Stock raising is closely attended to throughout the whole district; the desire of every one is only manifested in how to increase them.

There is much being done in the way of crossing native cows with bulls of an improved breed. This policy is not only the best in the circumstances, but follows a sound principle in itself. The results obtained, both in increase of size and more rapid growth in the progeny, is simply surprising.

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## **The Management of Ostriches from the Nest to the Breeding Camp.**

By OSCAR E. G. EVANS.

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Ostrich farming, though a comparatively young industry yet, has now become in Cape Colony quite a settled branch of farming, with certain established rules governing the successful carrying on of a well-managed ostrich farm.

Though a young industry, ostrich farming has made enormous strides since its inception, and may now be safely regarded as one of the most important industries in South Africa, and one which adds much to the wealth of the Cape Colony. It was about in the early sixties when ostrich farming first sprang into existence. Before this a good deal of business had been done by hunting parties who used to shoot the wild ostriches for their feathers. The high prices obtained for the feathers of the wild ostriches by these hunting parties, soon caused the Cape farmer to turn his attention towards catching the chicks of these wild ostriches with a view to farming them for their feathers.

In this small way began the gigantic ostrich farming industry of to-day, which exported last year about £1,300,000 worth of ostrich feathers.

I shall endeavour, though somewhat diffidently, to put forward a few hints on the rearing and management of ostriches for the benefit of those of your readers to whom the industry may be a new one, and who may be thinking of embarking in ostrich farming in your colony.

For up-to-date ostrich farming, and getting the best return from this branch of farming, lucerne growing is a "sine qua non." There are certain districts where os-

triches do better on the natural pasturage of the country than in others, but even where doing best the conditions would always be improved by having growing paddocks of lucerne. If sufficient lucerne cannot be grown to keep all your stock of birds on, it is as well at any rate to have sufficient to rear your chicks.

The laying season for ostriches starts about the end of June, and may be said to terminate about the end of September. If ostriches are well fed on artificial food and forced to it, they will lay almost every month in the year. This, however, in my mind is questionable wisdom, as the chicks appear to become puny and certainly the late out-of-season chicks never thrive as well as the early in-season chicks.

The period of hatching for an ostrich egg is six weeks. Many farmers use incubators for hatching out the chicks. Very fair success often attends their efforts, yet I cannot help thinking, where it can be done, the naturally hatched chick makes the more robust and strong constituted bird. Where incubating has to be resorted to, the Cyphers Incubator is very well spoken of.

For rearing ostrich chicks no better method can be adopted than to remove them from the parents when they are a day or two old. A small shiftable wire netting enclosure may be put in a corner of a lucerne paddock in which the chicks may be placed (say about 20 to 30 feet square). It is as well to have a little covering over one corner to give the little ones protection from the sun if it is a hot day. By having this small enclosure portable, it can be shifted occasionally to new grazing. Even at this early stage there should be a native or someone always with the little chicks, this tends to keep them tame. They very soon look upon the attendant in the light of a parent, and will follow him about. Care should be taken not to run small chicks on lucerne which is too long. It is better to cut the lucerne even to waste, but keep it short where they are grazing. If it is too long, it is apt, with the slightest dew or moisture of any kind to wet them up to their necks. This is fatal to the health of little chicks.

At night these little chaps should be carefully put into nice clean boxes, with dry sand or fine dry stable litter or kraal manure in the bottom of them to sleep on. An ordinary grain bag can be put over the box to act as

covering. Care should be taken to give them just sufficient heat and not too much. If the night is warm a portion of the box can be left open. At the age of about two months they may be allowed to sleep loose in a brick room with a roof. Dry clean sand should be put on the floor every few days. Avoid a draughty room, and above all things avoid putting them in an old fowl house, or where fowls have slept, as the fowl vermin are fatal to chicks even up to three months old. At the age of five or six months, ostrich chicks may safely be left out on the paddocks at night, as at this age they will stand very nearly as much cold or rain as full-grown birds.

The first plucking of feathers (*spadonas*) can be *cut* at the age of six months, or *drawn* at the age of eight or nine months. This clip is a very poor one, and usually averages about 10s. per chick. After this a plucking of feathers may be taken every eight months. The usual course being, after a growth of six months, when the feathers will be fully developed and well grown out, full of lustre and in the pink of bloom and beauty, they are cut with an ordinary clipper, similar to a pruning knife, leaving about an inch or two of quill or stump protruding from the socket. These quills or stumps are left in the sockets for two months, at the end of this time they will be found to be perfectly ripe and dried to a rich amber colour, when they are drawn out with an ordinary pair of wire pincers, thus making room for the new feather, which starts to grow at once and will again in turn be fit to cut in six months' after.

At plucking time the ostriches are rounded up from their camps or paddocks, and driven into a small substantial kraal, where the plucking boxes stand ready. The bird to be plucked is caught, and as quick as lightning a small linen bag is slipped over his head. This process at once renders the bird helpless, for being in darkness he will stand trembling until he is pushed into the plucking box. The plucking process takes about from five to ten minutes, when he is again hauled out of the box, the cap removed from his head, and the next one caught and so on.

Ostriches usually start breeding at the age of three or four years. At the breeding season those pairs which it is intended to breed from should be camped or paddocked

off together. If on lucerne an enclosure of one acre or less is ample for them. If on the natural pasturage then an enclosure of eight or ten acres will be required, and besides this it would be as well to feed each pair on about 4 or 5 lbs. of grain per diem. One cock may be put to two hens if so wished. Under these circumstances an incubator will be required to hatch out the surplus eggs. If two or more breeding camps abut one another, double partition fences should be put up, leaving a space of a yard or two between each partition fence. This is to prevent the cocks from fighting over the wire fences, and hurting themselves by kicking in the wires, in which way they often kill themselves. Where permanent breeding camps are erected, it is as well to place a shelter over the nest. In very heavy continuous rains, the nest if not sheltered is apt to rain full of water, even if the bird is hatching on the eggs, the continual trickle of water from the birds' feathers will in time fill the nest with water, and thus the eggs become inundated. A few sheets of galvanized iron on four uprights about six feet high makes a very good shelter. In constructing close only one side of the shelter, and more can be closed afterwards. I would recommend always leaving one side open, the side to the least rainy direction. Make a rule of feeding the birds at the shelter, and they will soon get used to it. When the first egg is laid, place it in a scooped out spot under the shelter. Continue to bring each egg as it is laid to the sheltered spot, and after the second or third egg the hen will take to laying in the protected nest herself.

The ostrich is wonderfully free from any form of contagious or infectious disease, indeed to my knowledge there is no such disease. Among little chicks there exists a disease known as "yellow liver," which generally comes with late chicks or in wet weather. This disease appears to be catching, as it will wipe out whole clutches of chicks. It generally attacks chicks of the age of from ten days to three weeks old, and will rarely effect them after a month old. Tape worm in wet seasons troubles at from the age of two months up to six months, but by systematic and regular dosing with any vermifuge it can be kept down. Good treatment, good feeding, and being kept in good condition, generally renders ostrich chicks immune from ailments or disease.

## GRAZING.

Although lucerne growing enables you to get the best return out of ostrich farming, it does not follow that profitable ostrich farming can be carried on where the natural pasturage is well adapted to the ostrich. In Cape Colony the best ostrich grazing is generally considered to be a mixture of "Ganna," "Nej bosch," "Brak bosch," and the various other succulent plants and bushes which are usually found in sweet veldt on the stretches near river banks.

Ostriches do not care for, nor do they do well on pure grass veldt. In Cape Colony hundreds of ostriches are run in large veldt camps. In these camps the birds have to be very carefully watched when dry seasons come, and at such times they require help with a little artificial feeding. For these large camps it is very necessary to have good strong fences. The usual thing is a wire fence consisting of six wires of black steel, No. 6 gauge, with good stout sneezewood poles thirty feet apart and four double laces of wire between the poles.

## BREEDING BY SELECTION.

For many years after the ostrich farming industry was started, no attention whatever was paid to breeding from selection for improving the feathers. In the eager desire to have numbers, the farmer allowed his ostriches to breed haphazard and promiscuously, any cock mating with any hen. In those days an ostrich was an ostrich, and as such he was valuable quite regardless of the quality of feathers which he produced. To-day an ostrich is valued for the quality of its feathers, and the strain it is out of, as much as any thoroughbred Tasmanian or Rambouillet sheep is valued for the quality of its wool and the strain it is out of. To show the value placed on high grade stock, it may be here instanced that to-day the common bred ostrich can be bought in thousands in the Cape Colony at from £3 to £4 each, while for high class stock out of special strains from £50 to £200 is often paid for a single bird. The difference in the money yield between the common ostrich and the well bred one is very great, while the common will return only 20s. to 30s. per plucking, the well bred will return from £8 to £12 per plucking.

## CAPONISING OSTRICHES.

This is a new departure in ostrich farming, and one which promises to become as universal as castration in all the other branches of stock farming. Isolated cases have been done on isolated farms for years past. Some very interesting experiments have been made recently by Veterinary Surgeon Elley at Oudtshoorn. In a paper read before the farmers of that district Mr. Elley said he had caponised 400 ostriches with great success. It is claimed that this tends to improve the weight of the clip of feathers, makes the birds quiet by nature, and not vicious and inclined to kick human beings, and above all enables them to thrive and keep in much better condition under adverse circumstances than otherwise.

## PROHIBITING EXPORTATION.

An act has been passed this session prohibiting the exportation of ostriches or ostrich eggs from the Cape Colony. This act was introduced solely with the object of preventing ostriches crossing the waters to other countries. Being a new act it is not yet promulgated, but I believe it provides for the free exportation of ostriches to any neighbouring South African Colony or State which adopts the same laws with regard to exporting oversea. I should like to point out that it would be wise on the part of Rhodesia to get on buying terms with the Cape. At present you have a large field for catching the offspring of the wild ostrich. In this you have the common stock with all its advantage of a strong hardy constitution. But you will certainly be lacking in quality. You may find, and no doubt you will, occasional birds showing more quality than others, but it is quite impossible to obtain the quality in wild stock off the veldt, that can be found in the old established strains of special merit which to-day exist among Cape farmers. By obtaining some of the best blood of the Cape and crossing them with the hardy constitutioned progeny of wild birds, it will mean at once adding thousands of pounds to the income of this industry. Always remember that quality in ostriches counts for quite as much, and perhaps more, than in any other kind of stock. More especially is this so when birds are run on lucerne. A "rip" eats just as much as a good ostrich, and a good ostrich returns you three or four times as much as the "rip."

## **Anthracnose of the Vine.**

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Every year many people are disappointed with the crop of fruit they obtain from their vines, the early promise is often excellent, but when the berries attain a certain size, they shrivel up, and most, if not all the crop, is lost.

This is often due to the fungus (*Gleosporium ampelophagum*) which attacks not only the fruit, but also the leaves and the stems. This fungus generally appears during or after moist weather, which condition is most suitable to its rapid growth.

Mr. Chas. P. Lounsbury, the Cape Government Entomologist, describes the disease as follows:—

“The appearance of the disease varies with the severity of the attack, and the age of the part affected. Small oval dark spots first appear, and sometimes these are numerous enough to give the shoots a speckled look. If the conditions remain favourable for the trouble, the veins and stalks of the leaves, and the fruit stalks soon become spotted with dark, sunken areas as if the parts had been touched with a hot iron. The spots may measure a quarter inch in diameter, and two or more may unite to form an elongated deep wound. The blackness of the spots suggested the common name of the disease ‘zwart roest’; and also the name ‘anthracnose,’ which means coal disease. When the disease appears early, the flower stalks may be completely girdled and destroyed, or the flowers all killed, and thus the vines prevented from bearing fruit. If the berries are nearly full sized when attacked, large round spots, brown in the middle and reddish at the margin, develop on the surface, and later these spots may scab over or become the starting place of permanent decay. The growth of the foliage and shoots is checked and often distorted, and sometimes the parts are quite destroyed. Likewise, injury to the stalks of the grape clusters may cause the berries to wither and die.”

Mr. Lounsbury also gives the following remedy:—

“Anthracnose is said to have existed in Europe from time immemorial, and many measures for controlling it have been tried. During the past twenty-five years the most popular one has been the winter treatment of the

affected vines with a strongly acid solution of Sulphate of Iron. The proportions of the ingredients for the wash most recommended are:—

Sulphate of Iron Crystals ... ..	110 pounds.
Commercial Sulphuric Acid ... ..	1 quart.
Water ... ..	22 gallons.

“The solution is applied to the dormant sticks, and every portion of the surface thoroughly wetted. It is very corrosive and destructive to the skin and clothing, and hence must be handled with care. It is generally applied by means of a swab of rags bound about the end of a stick, but in Europe some use is made of a specially constructed spray pump, the metal of which is protected from corrosion by an acid proof coating. If any growers wish to learn how a pump will work, I should suggest that they try with a small bucket pump like the well-known ‘Success,’ fitted with a fine nozzle. If the apparatus were well washed out soon afterwards, the injury done to it would be of little consequence. Wooden buckets, with wooden hoops if possible, should be used for carrying the solution, as it speedily eats holes through metal vessels.”

“As an alternative to the winter use of sulphate of iron, Mr. Dubois has recommended dusting the growing vines with mixed sulphur and lime. The first application should be made when the shoots are six inches in length, and subsequent treatments be made every ten days. For the first, one part of powdered slaked lime is mixed with four parts of sulphur; for the second, two of lime to one of sulphur; and for the third and later applications three of lime to two of sulphur. This measure may prove very useful in the parts of the Colony where the disease comes on late.”

“In America, Bordeaux mixture is the usual preparation applied to prevent anthracnose. The usual recommendation is to spray the vines very thoroughly before the buds open, again before blossoming, a third time after the berries have set, and once or more at ten day intervals later. As the mixture leaves a stain, its use is generally discontinued when the fruit is half grown. The need of applications after the first two depends largely on the nature of the season.”

While treating on remedies for the injury from fungus and the attack of insects to which fruit trees, etc., are liable, it may be of interest to add a few notes on spraying generally. The information is gained from a bulletin giving the results of experiments carried on at the Kansas State Agricultural College.

"Nearly all fruit plants are subject to insect attack and injury from fungus. A combination spray is desirable, and is practicable, but in many cases only one or the other is necessary and advisable."

The materials most used as insecticides are Paris green, London purple, and arsenate of lead. Paris green has been found to be somewhat variable in composition, and liable to cause injury by burning the foliage and fruit. From eight to ten ounces to one hundred gallons of water has been found to be effective. Four pounds of quicklime, well slaked, added to one hundred gallons of water has greatly decreased the danger of "spray burn." Paris green is sometimes found to be adulterated, in which case it is of no value.

London purple is less uniform in composition, and more liable to cause "spray burn." It is usually stronger in arsenic, and six ounces to one hundred gallons of water is about the maximum used.

Arsenate of lead is the most satisfactory insecticide. It is less liable to cause injury, and adheres to foliage and fruit very much longer. It is more expensive than Paris green, but is well worth the difference in price.

The most satisfactory fungicide is the Bordeaux mixture, composed of sulphate of copper (blue stone, blue vitriol) and lime. Various proportions are used, but the formula, five pounds sulphate of copper, and five pounds of quicklime to fifty gallons of water has been found best.

Copper sulphate varies somewhat in composition, and Bordeaux mixture should be tested before using in order that any excess of copper, which is liable to cause injury, may be detected and neutralised with more lime. Blue litmus paper is used to make the test. If it remains unchanged, it is safe. If it turns red more lime should be added. Ferrocyanide of potassium is one of the most satisfactory tests. After the mixture has been thoroughly mixed, a sample is taken and a few drops of the Ferrocyanide added. If a reddish brown

precipitate appears, the mixture has an excess of copper, and lime should be added until the drops of Ferrocyanide remain unchanged.

The most satisfactory combination of insecticide and fungicide is the Bordeaux mixture and arsenate of lead. No ill effects result from this combination.

### SPRAY PUMPS.

A good spray pump must have sufficient power to cover the plant treated with a very fine mist. The pump must have force, and a good nozzle must be used. The number of nozzles used, and consequently the rate of spraying, depends upon the power. Any good hand pump operated by a strong man should furnish power for a double nozzle upon a single lead of hose. The hand pump is a good spray machine for a small grower. It should be a good one, with working parts (plunger, valve, air-chamber, and cylinder) of brass.

Preparations for spraying should be made sufficiently early in the season to insure the obtaining of materials in sufficient quantity, and of guaranteed quality, and the perfect condition of machinery. It is economy to provide extra nozzles, leads of hose, rods, and parts that are most liable to injury.

Convenient arrangements for dissolving and mixing materials should be made. An elevated platform is a great help where large operations are undertaken. Upon this should be placed tanks or barrels for dissolving materials and for holding stock solutions.

The chemicals used are most readily dissolved by suspending them in the upper part of the water in the tank or barrel. Clean cotton sacks are best for this purpose. Ordinary sacks shed some fibre.

The use of one pound of the chemical to one gallon of water makes a solution that is convenient when computing the proportions of mixtures. Stock solutions should always be well stirred before using, and all materials should be carefully strained between the dissolving barrel and the stock tank and the tank of the sprayer.

It is best to use all materials directly after their preparation. Bordeaux mixture that has been prepared for some days has caused spray burn that could not be accounted for in any other way than that the mixture had changed

during the time it was standing. Thorough mixing of all materials is essential. Some method of stirring is an essential part of spray machinery.

#### SPRAY FORMULAS : INSECTICIDES.

Arsenate of lead :

- 3 parts of arsenate of soda.
- 7 parts acetate of lead.

Or take

- 15 lbs. arsenate of soda dissolved in 15 gallons water,
- 35 lbs. acetate of lead dissolved in 35 gallons of water.

Pour the two together into a third vessel. Use four to six gallons of this for 100 gallons of water ; or, if desired, use 100 gallons Bordeaux mixture in place of the water.

Paris green :

- 1 lb. to 150 or 200 gallons of water.
- 2 lbs. lime.
- 5 to 8 ounces to 50 gallons Bordeaux mixture.
- 1 lb. to 20 lbs. flour, as a dry spray for cabbages, etc.

Paraffin emulsion :

- $\frac{1}{2}$  lb. of soap.
- 1 gallon water.
- 2 gallons paraffin.

Dissolve the soap in water over a fire. Remove from the fire and add paraffin. Stir violently. Use one part of emulsion to eight to fifteen parts of water.

#### FUNGICIDES.

Bordeau mixture :

- 5 lbs. copper sulphate.
- 5 lbs. lime.
- 50 gallons of water.

Dissolve the blue vitriol, one pound to one gallon of water. Slack the lime. Dilute both the lime and copper sulphate to half the total number of gallons of Bordeaux

to be made, and pour the two through a strainer into a third vessel. The product in the third vessel is Bordeaux mixture. If the mixture turns blue litmus paper red, add more lime. If it turns a drop of potassium ferrocyanide brown, add more lime.

Copper sulphate solution :

1 lb. copper sulphate.  
25 gallons of water.

Lime sulphur wash :

20 lbs. stone lime.  
15 lbs. flowers of sulphur.  
50 gallons of water.

Slack the lime in the cooking receptacle. With a little water make a thin paste of the sulphur. With about ten gallons of water add the sulphur to the slacked or partially slacked lime and boil, preferably by steam, one hour. Add enough water to make 50 gallons. Strain when putting into spray tank. Use while warm if possible. Apply in winter or spring before the leaves appear. A good remedy for scale insects.

## **Destruction of Locusts.**

### DIRECTIONS FOR USE OF MATERIAL.

*(The Spray Pumps are easily manipulated with the aid of a bucket or paraffin tin.)*

#### ARSENICAL SOLUTION.

1. For young voetgangers:—

Arsenite of Soda	1 lb.	(1 beef tin or 1 large cup full).
Sugar ... ..	2 lbs.	(2 " " " " 2 " " " " )
Water ... ..	16 gallons	(4 paraffin tins full).

2. When the young voetgangers become half grown this solution should be prepared as follows:—

Arsenite of Soda	1 lb.	(1 beef tin or 1 large cup full).
Sugar ... ..	1½ lbs.	(1½ " " " " 1½ " " " " )
Water ... ..	12 gallons	(3 paraffin tins full).

3. When the voetgangers are full grown the following solution can be used:—

Arsenite of Soda	1 lb.	(1 beef tin or 1 large cup full).
Sugar ... ..	1 lb.	(1 „ „ „ 1 „ „ „ ).
Water ... ..	8 gallons	(2 paraffin tins full).

A solution stronger than one pound of arsenite to eight gallons of water should on no account be used.

It should be sprayed lightly on the grass in a fine mist, but not drenched. When voetgangers are small it can be sprayed among them or in a circle round them, but when they are larger and moving across the veld, a strip of grass in front of them should be sprayed. When they come to it they will commence eating, and in a few hours all will be dead.

As arsenite of soda is a deadly poison, great care should be used in order to prevent accidents.

Analysis has shown that 36 lbs. of grass, sprayed with the strongest solution recommended, will kill a young calf, and 72 lbs. an ox. Therefore all animals should be kept away from the sprayed areas until the arsenite has burned the grass, and caused it to die, or until a heavy rain has washed it off.

If these precautions are carried out no accidents need occur.

Pumps and material are being lent to farmers willing to assist in the extermination of locusts, and as there is only a limited supply, it is requested that when finished with the pumps and any remaining poison may be returned to the Agricultural Department for re-issue to others.

The Agricultural Department will be glad to receive reports on the work done, numbers of swarms destroyed and progress effected, from time to time.

N.B.—It is not intended to deal with flying locusts. The material should be reserved for destroying the voetgangers in their various stages.

Department of Agriculture,

Salisbury, 29th August, 1907.

## Epitome of Cattle Inspectors' Returns.

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FOR THE MONTH OF JULY, 1907.

### SALISBURY.

This district is now considered free from African Coast Fever, and the old infected areas have been released from quarantine.

### BULAWAYO.

#### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: The position at Nsingwani may be considered satisfactory. Only a few deaths have occurred during the month, and several herds when proven clean have been driven outward. The fencing, estimated at about 45 miles, is two-thirds completed.

#### *Rabies.*

Several dogs were destroyed at a native kraal in the Inyati district.

#### *Glanders.*

The following animals were tested with Mallein and found healthy: Horses, 112; mules, 106; donkeys, 5; total, 223.

### GWELO.

#### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: A recrudescence of the disease broke out amongst some of the transport cattle at Moonie Creek, within the Selukwe quarantine area, attributed to the animals gaining access to the infected veld at the Tebekwe Slaughter Poles. Only branded "salted" cattle are allowed to work within the area, and all susceptible animals have been stabled. Five deaths occurred.

#### *Scab.*

Two outbreaks.

## UMTALI.

This district is free from African Coast Fever.

*Scab.*

One outbreak.

*Mange.*

One donkey affected.

## VICTORIA.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No cases of Coast Fever have occurred during the month. Many animals have died from poverty, and the mob has had to be divided into two herds.

## MELSETTER.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

## GWANDA.

*Rabies.*

One case; a native was bitten.

## MANGWE.

*Scab.*

Three flocks infected.

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FOR THE MONTH OF AUGUST, 1907.

## SALISBURY.

*Scab.*

Several outbreaks of this disease have occurred, four flocks being under licence, three of which are in the Mazoe Native District.

## BULAWAYO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: A ring fence of 36 miles has been completed around the known infected veld, and tests are in progress to prove the cleanliness of the veld in the vicinity, and insure that no infected ground has been left without. During this operation, Maswe's and other native herds to the east of the fence were concentrated at a temperature camp; after two weeks had elapsed, two of Maswe's cattle developed Coast Fever, demonstrating the fact that his had struck an infected patch of ground. A close watch over, and a defined limit to the grazing grounds of each native herd, had all the time been strictly observed, without any suspicious case occurring, and it now proves that the early determination to carry out the last precautionary measure was most fortunate. The proper cleansing of the area will still entail much long and patient work, as a wide zone will have to be operated over. One death occurred within the fenced area.

*Scab.*

Two flocks have been placed under licence.

*Glanders.*

The following animals have been tested with Mallein, and found healthy: Horses, 76; mules, 73; total, 149.

## GWELO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No sickness has occurred during the month at the Selukwe quarantine area.

*Scab.*

One flock placed under licence.

## UMTALI.

*Scab.*

Fifteen flocks under licence.

*Redwater.*

Three deaths have resulted from the inoculation of cattle, which it was considered advisable to inoculate for Redwater, as the animals were to be removed from a farm cleansed of ticks to one infested, as it was feared that heavy mortality would be likely to result without treatment.

## VICTORIA.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: Only one death suspected due to Coast Fever. The position on the whole is satisfactory.

## ENKELDOORN.

*Rabies.*

One mule was destroyed, being suspected as suffering from Rabies.

E. M. JARVIS,

Acting Chief Veterinary Surgeon.

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**Rebate on Seed Potatoes.**

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The Secretary for Agriculture has received the following letter from the Acting Manager of the Beira and Mashonaland and Rhodesia Railways:—

“The special rates, page 88 of Tariff Book, under which imported seed potatoes carried at the 3rd class rate over the Beira to Gwelo Line and Lomagundi Branch are subject to a rebate of 50 per cent., I have the pleasure to inform you that it has now been decided to grant this rebate the whole year round instead of limiting it to the period September to March.”

## **The Produce Markets.**

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### REPORT OF THE SUPERINTENDENT OF AGRICULTURAL CO-OPERATION FOR THE WEEK ENDED OCTOBER 5TH, 1907.

During the past week business in the produce trade has been a little more brisk.

Oats and oathay have declined slightly. Lucerne remains high, and consequently very few sales have been recorded. Prospects for the next season's crops of this hay in the Western Province are favourable, and advices have already been received of particulars of new crops being available about a fortnight hence. Mealies remain firm, and barley, rye and Kafir corn, while very small quantities have changed hands, remain steady.

As was anticipated, the quotations for onions reached top prices about a week ago, and a fall has already set in. The Early Morning Market is considerably overstocked with this article, and a further decline may be looked for during the forthcoming week.

The markets remain overstocked with potatoes.

The Western Province Co-operative Dairy have now completed their arrangements for making butter, and this Company are now turning out an article of really good texture and flavour, which quality it is anticipated will be maintained. The butter, which is meeting with an excellent demand locally, is being retailed at 1s. 6d. per lb.

A large consignment of Colonial Cheddar cheese of 2,000 lbs. was recently forwarded to Cape Town. The whole amount has now been disposed of. On all hands it has been stated that the quality of this cheese has surpassed any hitherto prepared in the Colony, and as it may be confidently anticipated that this standard of excellence will be maintained, it is hoped that the local prejudice, manifested generally by the trade against a Colonial cheese, will be overcome. The consignment of cheese in question, while being of excellent quality and cutting well, has not shown any tendency to become dry or crumble.

## GRAINS, CEREALS, ETC.

Colonial Wheat per 200 lbs.: Caledon (first), 18s. to 18s. 6d.; Malmesbury, 18s. 9d. to 19s.; Moorreesburg, 18s. 6d. to 18s. 9d.; Porterville Road, 19s. 6d. to 19s. 9d.

Colonial Oats, per 150 lbs.: Caledon (first), 6s. to 6s. 3d.; (seconds), 5s. 3d. to 5s. 9d.; Moorreesburg, 6s. 9d. to 7s.; Malmesbury, 6s. 9d. to 7s.; Main Line, 7s. 9d. to 8s.

Colonial Barley, per 150 lbs.: Moorreesburg, 8s. to 8s. 6d.; Main Line, 8s. 3d. to 8s. 9d.; Caledon, 7s. 9d. to 8s.

Colonial Rye, per 100 lbs.: Country Stations, 16s. 6d. to 17s.

Kafir Corn, per 200 lbs.: Red, 12s. 9d. to 13s.; white, 12s. 6d. to 12s. 9d., ex Stores, Cape Town.

Bran, per 100 lbs.: 5s. 6d. to 5s. 8d., ex Stores, Cape Town.

Mealies, per 200 lbs., delivered Cape Town: Natal yellows, 11s. 3d. to 11s. 9d.; O.R.C. small yellows, 13s. 3d. to 13s. 6d.; Natal white coast, 11s. 9d. to 12s.; Eastern Province Germans, 12s. 6d. to 12s. 9d.; Eastern Province mixed, 11s. 3d. to 11s. 6d.

## FORAGE, per 100 lbs.

Colonial Lucerne Hay: 5s. 3d. to 5s. 7d., ex Stores, Cape Town.

Colonial Oathay: 4s. to 4s. 1d., Main Line Stations; 3s. 6d. to 3s. 8d., Moorreesburg and Malmesbury.

Colonial Fodder: 5s. 6d. to 5s. 9d., ex Stores, Cape Town.

Colonial Compressed Chaff: 1s. 9d. to 1s. 10d., Main Line Stations; 1s. 7d. to 1s. 8d., Moorreesburg and Malmesbury.

## FRUIT AND VEGETABLE MARKET.

Keiffer pears, 5s. to 6s. per case; Cape lemons, 6d. to 1s. per 100; limes, 1s. 5d. to 2s. 10d. per 100; bananas, 13s. to 19s. per box of 800—1,000; pine apples (E.P.), 1s. 6d. to 2s. 6d. per dozen; oranges (small), 3s. to 4s. 6d.

per 100; medium, 4s. 6d. to 7s. per 100; large, 7s. 6d. to 12s. per 100; market has advanced considerably for oranges; naartjes, 3s. to 8s. per 100, in demand; apples (Capes), 5s. to 8s. per case; imported, 9s. to 15s. 6d. per box; mebos, 1s. to 1s. 2d. per lb.; prunes, 4d. to 4½d. per lb.; beans (fresh), 12s. per bag; potatoes (1st quality), 7s. to 9s. 6d. per bag; 2nd quality, 4s. to 6s. 6d. per bag; sweet potatoes (new), 8s. to 10s. per bag, market overstocked; onions (new season's), 3s. per 100 bunches; good quality, 18s. to 23s. per bag; 2nd quality, 5s. to 12s. per bag; market considerably overstocked with onions, and latter part of week were selling at 18s. to 19s. per bag, with every indication of a big drop in prices for next week; green peas (fresh), 4s. to 6s. 6d. per bag; beans (Natal and sugar), 37s. 6d. to 40s. per bag; cabbages, ½d. to 2d. each; carrots, 6s. per 100 bunches; parsley, 6s. per 100 bunches; beetroot, 6s. to 8s. per 100 bunches; parsnips, 6s. to 8s. per 100 bunches.

### POULTRY.

Fowls (small), 1s. 1d. to 1s. 4d. each; medium, 1s. 4d. to 1s. 9d. each; large, 1s. 8d. to 2s. 10d. each; ducks, 2s. 10d. to 3s. 9d. each; turkeys (hen), 4s. 6d. to 6s. 6d. each; cock, 7s. to 11s. each; geese, 3s. to 4s. 6d. each; ostrich eggs, 1s. each; Colonial eggs (fresh), 9s. per 100; not guaranteed, 7s. to 8s. per 100.

### PROVISIONS.

Colonial butter (best), 1s. 4½d. wholesale; 1s. 9d. retail; Colonial Cheddar cheese, 9d. to 10½d. per lb., delivered Cape Town; Colonial Camambert cheese, 9s. per dozen; Colonial National cream cheese, 4s. 6d. per dozen.

### LIVESTOCK.

Prime slaughter oxen, 37s. 6d. to 38s. 6d. per 100 lbs., dressed weight, Maitland; sheep, from 52 lbs. to 56 lbs., dressed weight, 21s. to 22s. 6d.

Enquiries for the following items have been received; farmers and others are accordingly invited to submit full particulars with samples of quantities available:—Rambouillet rams, Merino ewes, guinea fowls, turkeys, 6 ducklings per day, mealies, oats, Colonial wheat, bran, butter, eggs, everlasting flowers, calabash heads, green peas

(dry), 300,000 onion plants suitable for seed, onions, Colonial bacon and hams, berry wax and beeswax, comb and liquid honey, light leaf tobacco, chillies and capsicums, kraal manure, suet and tallow.

The Officer in Charge Military Supplies at Middelburg, Cape, is anxious to deal direct with the farmer, and has notified particulars of the annual requirements of his camp. Offers in the following items are therefore invited: Oats, oathay, lucerne, mealie meal, bedding, potatoes, fresh eggs, coarse salt, fresh vegetables and meat.

The following items are offering for sale: Cut wood at £1 per 1,000, f.o.b. Plumstead; Shaddock marmalade and Shaddock preserve (home-made), eggs, table potatoes, comb and liquid honey, calabash heads, leaf tobacco, dried fruits, bush tea, walnuts, oil cake (suitable for feeding cattle), most komfyt, beans, artichokes.

Grains, etc.: Bedding, seed barley, oats, seed wheat and rye. About 80 to 100 tons of lucerne offering, to be delivered about the middle of October.

Merino ewes, 1 cow (£12), 1 shorthorn bull, trek and slaughter oxen, slaughter cattle, milch cows, pigs and sucking pigs, bull calves, bay colts, bay mares, Friesland cows and calves, Jersey bulls and sheep.

## JOHANNESBURG MARKETS.

Forage has not grown firmer this week. We believe that prices will weaken very gradually from this on. Much inferior arrives, and this compels holders of best to realise at lower rates. Mealies (yellows), remain at 7s. 6d.; white, 7s. 3d. The supply is not over the average. Kafir corn keeps to 11s., white and mixed; red, 11s. 9d. to 12s. Bran is sold at 7s. to 7s. 6d. Potatoes, except for the very best there is no demand. Up-to-dates, per 153 lbs., 10s. to 11s. 6d.; Early Rose, 11s. to 12s. 6d. Onions are very scarce; to-day's sales, 25s. to 26s. 6d. per bag of 120 lbs. net. Oats (best Cape) are sold at 12s. 6d. to 13s. 6d. per 150 lbs. Lucerne sales at 5s. 3d. to 6s. have been made. Once the new season's forage crop comes on the market, prices for this article will drop considerably. Holders in the Cape Colony should note this.

Forwarded with the compliments of the Superintendent of Agricultural Co-operation.

## Hutcheon Memorial Fund.

Subscriptions are invited towards a fund for providing a memorial to the late Duncan Hutcheon, M.R.C.V.S., for many years Chief Veterinary Surgeon of Cape Colony, and latterly Director of Agriculture.

The following gentlemen have consented to act as a Committee:—The Hon. J. X. Merriman, the Hon. Sir John Frost, the Hon. Sir Pieter Faure, the Hon. A. J. Fuller, the Hon. Colonel Crewe, the Hon. C. W. H. Kohler, Colonel W. E. Stanford, C. G. Lee, Esq., W. H. Hockley, Esq., A. W. Guthrie, Esq., C. P. Perks, Esq., H. H. Hands, Esq., the Director of Agriculture, Pretoria, the Director of Agriculture, Bloemfontein, the Secretary for Agriculture, Salisbury, the Government Entomologist, Pietermaritzburg.

The Committee feel that the late Dr. Hutcheon's many friends throughout South Africa, particularly among the farming community, will be pleased to have an opportunity of expressing by this means their appreciation of his many valuable services to the country, and the esteem in which he was generally held by those who came in contact with him.

It may be mentioned that the widow and two daughters have been left in straightened circumstances, and it is generally felt that the memorial could not take any more suitable form than the provision of an annuity to supplement the small pension to which the widow is entitled from the Civil Service Fund. Should sufficient funds be subscribed over and above the amount required for this purpose, the balance will be devoted to the provision of such other public memorial as may be decided upon.

On behalf of the Committee,

A. A. PERSSE,

Hon. Sec. and Treasurer.

Office of the W.P. Agricultural Society,

Parker's Buildings, Burg Street,

Cape Town.

P.O. Box 1134.



## Correspondence.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

Dear Sir,—

I have read with much interest the letter from Mr. Tylecote, on fowl keeping, which appeared in the June Journal, and I must say that my experience and observation does not coincide with his. I have here what is termed a Sand Veldt Farm, and have been keeping chickens on it for the past two years. The only grown bird I have lost during that time was an old cock, which died from the severe cold this winter, and the egg output during the time I have been here has been all that could be desired considering the stock I am keeping.

Just previous to two years ago, I had something over 100 Mashona hens. I took little or no care of them, with the result that I lost nearly the whole lot. The few that remained I took an interest in and got a first class cock to run with them, my idea being to breed up from the native bird. I changed the cocks periodically, and am now breeding from a fourth cross, with a strain of Game and Leghorn in them. My full grown birds are from two to two-and-a-half times the size of a Mashona fowl, very graceful in appearance, splendid foragers, excellent mothers, and fair egg producers, the eggs comparing very favourably with eggs from better (?) and larger birds. I have also noticed that the off laying season is not nearly of such lengthy duration as is the case with some of the imported varieties of fowls, and I feel certain that could I find the time to give them more attention and institute trap nests, I could in a very short time produce as good an egg layer as could be desired. As they are at present, I consider they are, taking them all round, an excellent barn-yard fowl, requiring practically no attention from the time they are hatched until they are despatched.

Mr. Tylecote's inference that Sand Veldt farmers will rarely, if ever, have the delights of ham and eggs for breakfast, whilst those lucky possessors of a hump of rocks and a red patch will be surfeited, is—well, humorous.

I know little enough about the theory of fowl-keeping, still it does not require a Columbus to discover that the best kind of bird to keep is a suitable one, and if the

Natal ones won't lay, I would suggest trying another until you get one that will. Now I wonder if there are any other Sand Veldt farmers who have managed to get a few fowls to lay eggs? If there are, their testimony would be appreciated by the writer, and would also prove instructive to others who may have suffered in a similar manner to Mr. Tylecote. I cannot think I am the exception that is going to prove Mr. Tylecote's inferred rule. His other remark about red soil being richer in insects than sand veldt, I have not gone into, not having taken the trouble to count the different varieties on the two soils. He says that he has the most, and I'll take his word that he has, life is only short after all.

With apologies for encroaching on your valuable space to such an extent,

I am, dear Sir,  
Yours faithfully,

HAROLD TURNER.

Glen Avon, Salisbury, August 30th, 1907.

P.S.—I am not a poultry keeper in the strictest sense of the phrase, and as I have inferred above, give little of my time to them, still I notice from a few notes taken that my pullets started to lay three months ago, when only seven months old.

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TO THE EDITOR, "AGRICULTURAL JOURNAL."

Dear Sir,—

I read with pleasure your article in the August Journal on Crossing Poultry, and am quite in accordance with most of what you say, and glad to get the good sound advice you give. May I, however, not in any spirit of carping criticism, but with the friendly desire of keenness to learn, question some of your statements and suggest others.

Is the end and aim of crossing to produce an all-round fowl? I should say that was the end in view when working to establish a permanent breed, such for instance as the Wyandotte, which should combine all the desired qualities as a layer and table bird. Else why has such a breed as the Leghorn or Minorca so persistently been in favour? They have been bred solely for their great laying powers. A cross between the two, which you would I am afraid call "waste of time, material and money," is con-

sidered by many as a splendid cross. The chicks are far hardier, develop into excellent layers, and do not become broody.

I would venture to emphasise the fact that the great benefit of crossing, especially in this country, is the additional stamina and virility of the chickens, as you yourself have observed. It is so well known by bitter experience how hard it is to rear chicks of some breeds, like the Leghorn for instance, while cross-bred chicks even from these delicate sorts rarely give any trouble, and then usually because of some mismanagement.

Further, with reference to your remarks as to the undesirability of indiscriminate crossing, I must take exception in part. I noticed it stated recently in an article on poultry in one of the Transvaal papers that the White Leghorn-White Wyandotte cross produces a very active white fowl of first class laying qualities all the year round. This, the writer goes on to say, is a most profitable cross to keep, the birds being small eaters, big layers, very hardy, and mature quickly. The eggs are tinted. I am myself at the present time awaiting the hatching out of some eggs of this same cross, and hope not to be "one of those unfortunate individuals who will remain dissatisfied."

I also know a poultry farmer on a large scale in England who has found a cross between two laying strains of Buff Orpingtons and Silver Wyandottes a most successful and paying bird, the progeny being fine broad-breasted table fowls and splendid layers, besides being quite hardy and energetic in looking for their food; while in a Modern Book on Poultry which I have I see that a Plymouth Rock-Wyandotte cross is very highly spoken of by experienced and practical breeders of table fowls.

I mention these cases merely to show that there can be some method even in the madness of those who go in for "indiscriminate crossing."

With apologies for so far trespassing on your valuable space,

I am, etc.,

ENTHUSIAST.

Salisbury, 23rd September, 1907.

[This letter arrived too late to answer in this Journal; perhaps some reader will be able to give "Enthusiast" some results in crossing poultry.—EDITOR.]

TO THE EDITOR, "AGRICULTURAL JOURNAL."

Sir,—

The article published in the August number of the "Rhodesian Agricultural Journal," under the heading of "Jute," is entirely incorrect from the commercial point of view; in order to prevent farmers in this country from ruining themselves, by trying to grow and sell this fibre, I beg you to publish this article in your next Journal.

You state in your article that a sample of this Jute has been sent to Messrs. Coe Bros., Dundee, and that they value it at £35 per ton c.i.f. Dundee. I do not believe there is a firm at all of this name in Dundee, and if there is, the firm is of no standing, and their word should not be taken unless backed by recognised people. It is possible the name has been misprinted, and the real name should be "Cox Bros., Ltd., Dundee," who are one of the wealthiest and most reliable firms in Scotland. If you have misprinted the name of the firm, I think it possible you may have misprinted the value of the Jute, which reads in your Journal £35 per ton, when the real figure should read £15 per ton.

Jute never has or ever will reach the price of £35 per ton: the prices during the last 20 years for ordinary Jute fibre has been from £9 to £15 per ton, c.i.f. Dundee, and these tons weigh 2,240 lbs., and not 2,000 lbs., which is the African ton.

This means that Jute realises delivered in Scotland from 1d. to 1½d. per lb., according to the year. I think every farmer in Rhodesia will agree with me that to export fibre from Rhodesia to Scotland, and to realise there only 1d. to 1½d. per lb. would soon mean bankruptcy.

Now let us look at the other side of the question, which is: "Could we make our own grain bags in Rhodesia cheaper than we can import them, even if we could grow Jute at 1d. per lb.?" I most emphatically say "No."

To erect a spinning and weaving mill to make grain bags by the million would cost at least £200,000 in Rhodesia, and the number of hands required to work it would be from 2,000 to 5,000, and the mill must be kept running all the year, or it would immediately lose money.

Perhaps it is not known in this country that large mills in England, America, and India make themselves pay on their working expenses, and not by the actual profit

on the individual article. In other words, if a mill is making a profit of say 15 per cent. on all she makes, and she has to close down for two months in the year from shortage of labour, etc., the 15 per cent. profit will probably turn to a loss.

It would, of course, be impossible to pay or even obtain white labour in this country, as weaving and spinning is all done by girls at home, whose wages are 10s. to 15s. per week, and no scoff found. The same white labour here would cost £4 to £5 per week at the lowest.

Could we employ the natives? Would the wily Mashona sign on for three years' continuous service? He would have to sign on for this period at least, as the labour must be skilful and not raw, or "bang" would go the machinery and the profit.

I think that most people's experience in this country is that the average native will only work three to six months at a time. Perhaps it may not be generally known that nearly the whole of the grain bags used in the world are made in Calcutta, and from there shipped all over the world; enormous quantities are shipped to Dundee, and then re-shipped from Dundee to different parts of the world as Scottish manufacture. Now what does a grain bag (such as we use here for mealies) cost to make in Calcutta, where the Jute is grown, spun, woven and finished into bags by the cheapest labour in the world, i.e., the Indian. The grain bags we use are  $2\frac{1}{4}$  lb. grain bags, and the actual cost of these in Calcutta varies from  $3\frac{1}{2}$ d. to  $4\frac{1}{2}$ d., according to the demand and the year. The actual cost of freight by shipload from Calcutta to Beira direct would be about a  $\frac{1}{4}$ d. per bag. It is the ridiculous carriage charged by the Railway Co. from Beira to Salisbury, and the profits of the merchants in Salisbury that makes our grain bags so expensive. The price of these bags here ought to be about 6d. each, and not about 10d. each as they stand at present.

Now comes the question: What fibres can we farmers grow in Rhodesia and make a profitable business of? In my opinion we must grow a fibre which will always realise at least 3d. per lb. in the Home markets. Rhodesia is a natural fibre country, nearly every tree and shrub produces some kind of fibre in this country, and there is no doubt that some of the wild creepers could be cultivated for fibre and fetch from 6d. to 9d. per lb. in the raw state.

Only last week I found one and took the fibre from it, which was superior to the finest Dutch flax I have ever seen, but we are not ready yet to risk our money in unknown experiments. Let us go in for certainties now, and the others will come later.

I believe the most suitable and best paying fibre to grow in Rhodesia to be "Sisal Hemp." That the plant grows well here, anyone can see for themselves by visiting the old Government experimental plots. That it ought to grow well in this country is also true, as its home is Mexico, and the Mexican climate and altitude is the nearest to Rhodesia of anywhere in the world. The farmers in Mexico have made fortunes growing Sisal; in fact some of them have made millions, I believe, from this article alone.

The demand for this fibre is enormous, the yearly crop realising anything from £6,000,000 to £3,000,000, and the value of the raw hemp varies from £35 to £45 per ton, according to the demand and the year. It would, I believe, be possible to work this fibre to start with, without machinery, and by native labour, and also I think it would grow to perfection in our so-called waste lands in Rhodesia, i.e., the granite sandy soils, but this, of course, must be properly tested. I have heard many fictitious values put on different fibres grown in this country; now, if anyone wants to know what his fibre is actually worth, let him send 2 or 3 lbs. weight to the regular hemp brokers in London, and ask them to send it to an actual user to test, and if it is any good at all, these firms will actually give a trial order of a few tons at a price that will pay them. And it will be a fair price, as the trade is too much cut, and competition too keen to allow any swindling. The names of three good firms in London who can be depended on, are as follows:—

Hoare, Man and Co., 26 and 27, Budge Row, London, E.C. W. H. Hindley and Co., 62 and 63, Queen St., Cheapside, London, E.C. Messrs. Wigglesworth and Co., 157, Fenchurch Street, London, E.C.

Do not send your samples to the Imperial Institute, or any places like these, as I have never yet found them to be commercially correct, but get them tested by practical people. Also any of the above firms will send you their weekly printed lists of prices of every fibre used, and in the event of your sending any quantities of fibre to be sold

in England or elsewhere, any of these firms will attend to everything for the small commission of  $1\frac{1}{4}$  per cent. If personally the writer of this article can give anyone in this country any further information in connection with the fibre trade, he will always be very pleased to do so.

J. COOKSON, JUNR.

Brundset, Mazoe, September 2nd, 1907.

[Mr. Cookson is correct in his surmise that the name Coe Bros. is a misprint for Messrs. Cox Bros., Dundee. On receipt of his letter questioning the price of Jute, as stated in the Journal, a cable was despatched to London asking for confirmation or correction of this price. The reply states that the price, viz., £35 per ton, was correct on June 1st, and that the price on September 20th was £25 per ton. I am still open to correction, and feel sure that Mr. Cookson will not let the matter rest here; one cause for congratulation, however, is that the possible mistake has induced an expert to come forward and give his opinion, and I hope he will contribute many valuable articles in future Journals on the subject of fibres in general.—EDITOR.]

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J. PIKE,  
Secretary South African  
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## Government Notices.

No. 42 of 1907.

Department of Agriculture.

Administrator's Office.

Salisbury, 28th February, 1907.

### RABIES.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904," may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcasses of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

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No. 157 of 1907.

IMPORTATION OF PLANTS, &c., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that until further notice no person shall introduce into this Territory from the area of Cape Colony, lying East of and including the Division of George, Oudtshoorn, Uniondale, Willowmore, Aberdeen, Murraysburg, Richmond, Britstown, Hopetown, Herbert and Kimberley, any nursery stock, ornamental plants and shrubs, fruit, vegetables or portions thereof.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof imported into this Territory in contravention of the above Regulation, he shall order the same to be immediately removed from the Territory, or the Secretary for Agriculture may order such to be destroyed without delay.

All permits for the introduction of nursery stock from the aforesaid areas, which have been granted under Section 16 of Government Notice No. 141 of 1906 shall be and are hereby cancelled.

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No. 91 of 1907.

"GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds:—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glareola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

No. 237 of 1906.

## GAME LAW CONSOLIDATION ORDINANCE, 1906 : CLOSE SEASON, &amp;c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof :—

## CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.
2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.
3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned :—

- (a) Oribi, within the magisterial district of Charter.
- (b) Grysbok, within the magisterial district of Bulawayo.
- (c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.
- (d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melssetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C," except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary :—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows :—

On the North and West by the River Zambesi, starting at the point where the Lozenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanyati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaodsa Rivers to the headwaters of the Lozenzi River and thence along the course of the Lozenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaodsa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

## SCHEDULE

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umzwezwe Bridge, thence along the Umzwezwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 188 of 1906.

26th July, 1906.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.

2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions:

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.
- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (e) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
- (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.

- (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.
5. The movement of working cattle may be permitted under the following conditions only:—
- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.
- (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.
6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided:—
- (a) That such movement shall be to nearest available pasturage by the most suitable route.
- (b) That written consent be obtained in terms of Section 4 (b) hereof.
- (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.
7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.
8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.
9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.
10. All veld-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days: provided that the Controller of Stock may, on the advice of the Veterinary De-

partment, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank :—

For cattle (over six months) .. .. .	3d. per head.
For horses and mules .. .. .	3d. „
For calves (six months and under) .. .. .	2d. „
For small stock .. .. .	½d. „

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed ; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umyvutcha, Reigate, Upper Nondwene, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umyvutcha.

## Departmental Notices.

### DESTRUCTION OF WILD CARNIVORA.

It is hereby notified for public information that commencing on 15th June, 1906, rewards will be paid for the destruction of wild carnivora, within the limits of Southern Rhodesia, on the following terms and conditions, viz. :

£2 10s. each for Lions.

£1 each for Leopards and Cheetahs.

10s. each for Wild Dogs.

5s. each for Jackals, Tiger Cats and Redcat or Lynx.

2s. 6d. each for Baboons.

1s. each for Grey Monkeys.

Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the District.

In proof of destruction, applicants for rewards will be required to produce and surrender the skulls of lions and the tail and skin of head and neck of other animals destroyed. Of young animals, where the tail is less than six inches in length, the complete skin must be produced.

Applicants must be prepared to make a solemn declaration to the effect that the animals for which rewards are claimed have been captured and killed within the boundaries of the district of Southern Rhodesia wherein the claim is made and subsequent to June 15th, 1906.

### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

### STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 1s. 6d. per half ounce.

### DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

### GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree*.—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

### VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

### PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

### TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	s.	d.
Turkish, Smyrna ... ..	1	6
Turkish, Cavalla (an aromatic variety) ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0

	s.	d.
Conqueror (a heavier variety than the two former) ... ..	1	2
Bullion, do. do. do. ...	1	2
Zimmer Spanish (a hardy cigar tobacco) ...	1	6
Cuban Leaf (a cigar variety) ... ..	1	6
Sujatra (a cigar tobacco, wrapper) ... ..	2	3
White Burley (a bright Virginia, somewhat heavier than Hester) ... ..	1	6
Warne, do. do. do. ...	1	6
Connecticut Seed Leaf (a large cigar variety)	0	10
Kentucky Yellow (a dark rich large leaf) ...	1	0
Sweet Orinoko (used for plug fillers, a chewing tobacco) ... ..	0	10
Melton Prior (a dark strong leaf) ... ..	1	0
Lacks (a broad leaf, tough, fine fibre; on grey soils cures bright and elastic, on dark, rich and gummy) ... ..	1	0
Honduras (a bright mahogany) ... ..	1	2
Havanah (a cigar variety) ... ..	1	0

### TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price  $2\frac{1}{2}$ d. per square yard.

### CULTURE OF TOBACCO.

This book, by G. M. Odlum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

### FRUIT NETTING.

The Anglo-African Trading Company have also a stock of fruit netting for protecting fruit trees from the attack of fruit fly and other injurious insects, also birds.

## PRIZE COMPETITION FOR RHODESIAN GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown each season during the two years, 1907 and 1908.

1. For Rhodesian grown leaf from Turkish seed and cured in the usual Turkish manner.

(a) Best crop weighing between one thousand and five thousand pounds: £25

(b) Best crop weighing five thousand pounds and over: £75.

2. For Rhodesian grown leaf from American seed and flue cured.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over: £75.

### CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.

2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.

3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.

4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.

5. No competitor shall enter for both prizes in the same class.

6. All competing crops shall be the product of the season in which they are entered for competition.

7. Crops can be lodged at one of the Company's warehouses, which will be advertised later, any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st October in each year.

## INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

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In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows:—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Messrs. Hart and Co., Parker's Buildings (P.O. Box 898), Cape Town, Advertising Agents for Cape Colony, Transvaal, Orange River Colony, Natal, and Great Britain. J. Kapnek, P.O. Box 91, Salisbury for Rhodesia.

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## Farmer's Advertisement.

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**B**REEDER of Dairy Cattle has on hand Young Bull Calves from Cape Cows (Frieslands), £10 each, taken at 8 months.—C. C. Macarthur, Box 284, Salisbury.

**MEIKLE BROS.,**  

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**SALISBURY,**  
 **Direct Importers.**

-Etc., Etc.

Moline Disc. 1, 2, 3, 4, Fur.  
Flying Dutchman, 2                 "  
Oliver Single Fur. Mouldboards.  
Wiard, Hillside, etc.

2 Row "Champion."  
3 Row Deere and Mansur Coy.  
Aspinwall's Potato Planter and Sorter.

Martin's 7 and 9 time.  
Planet Jr. Horse, Hoe and Cultivator,  
1 and 2 Row.  
Hallock Weeders. "Dandy" (Riding).

Howard 5-Sec. Drag.  
Disc. Harrows, etc.

McCormick Mowers.  
Hay Rakes. Hay Presses.

Ox Wagons. Amer Buck Boards.  
Utility Carts.

## SOLE AGENTS

“ COOPER'S DIP.”  
“ IZAL.”



# THE RHODESIAN AGRICULTURAL JOURNAL

Issued by the Agricultural Department.

EDITED BY L. A. KING-CHURCH.

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## Editorial.

### SOUTH AFRICAN PRODUCTS EXHIBITION.

The reports of the judges and experts on the exhibits shown at the South African Products Exhibition, which appear in another part of this Journal, are of considerable interest in providing an outside opinion on local products as compared with similar products with which the Home markets are already supplied. It may be that up to now we produce samples and not in bulk, yet it is not uncommon for the local markets to be overstocked in a favourable season, and with the constant increase and improvement in agriculture in South Africa, which is so generally commented upon and recognised on all sides, an export trade is bound sooner or later to develop, and it is as well to know beforehand how our products will suit the over-sea markets. Natal has already provided a valuable and instructive example in the way she has organised and successfully carried out a profitable trade in exporting mealies, and it is obvious that if such a trade is to flourish and continue, the best of everything must be sent over-seas, and the inferior qualities retained for home consumption.

Rhodesia is the youngest of all the South African Colonies, yet she is by no means behind the older States in the quality of her products, and her tobacco ranked easily first of all that shown at the Exhibition.

Each colony will naturally develop the products for which she is best suited, and if Rhodesia maintains her ascendancy in tobacco, and in time so improves the quality and quantity of her output, she may rival the island of Sumatra, where tobacco, in some cases, pays 300 to 400 per cent. on the capital outlay, and nothing should prevent her from becoming one of the most prosperous states of South Africa.

The report of the judges conclusively proves that we produce many things as good in quality as the rest of the world, but it is in the final handling and general "get up" of the products that there is room for improvement, and on this point the expert criticisms are particularly valuable. Increase in quantity, not forgetting to maintain the quality, and care in grading seem to be the two points requiring most attention. The judges, of course, have little idea of the cost of production in this country, yet the natural sequence of increased production is decrease in the cost of production, and although some of the prices as quoted on the London market may seem to exclude all prospect of a profitable outlet in that direction, yet these prices must be profitable to some producers, as far distant from the market, and should also become so for the Rhodesian farmer.

The South African markets are not yet fully provided for in many commodities produced on the farm; there may still exist a scarcity in one place, and a surplus in another of one article, but with increased transport facilities, and better inter-colonial co-operation, this anomaly must soon disappear, and when trade has once found its natural level, a profitable outlet for the surplus will have to be found, beyond the limits of the sub-continent.

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Mr. P. Hannon, during his visit to Rhodesia, will discuss, among other things, the development of the fruit industry. New orchards are being laid out every year, and older ones extended, and soon there should be no necessity to import fruit from other colonies. It is to

the advantage of every farmer with an orchard, to keep it as clean as possible from every kind of insect pest. Every precaution is taken to prevent the importation of nursery stock into this country in any way infested with injurious insects or fungi, and prompt notice is given by the other colonies, who all co-operate in this matter, in the event of the discovery of any new insect or fungus, and steps are immediately taken to prohibit the introduction of nursery stock from districts where it may be found, but all these precautions are to a great extent nullified unless the existing orchards are maintained in a clean state, and every means used to eradicate already existing pests.

Unless this is done, fruit, especially if preserved or dried for export, can never command the highest price, to say nothing of the loss sustained by the grower if a large percentage of the produce of his orchard is destroyed or damaged by insects which are allowed to carry on their depredations unchecked.

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The San Jose Scale, as will be realised by those who read the article on this subject in this Journal, is to be feared almost more than other scale insects, and although it may not yet have reached here, yet no risks should be taken, and all scales should be destroyed.

The public are urged to examine closely any fruit trees, vines, ornamental shrubs, hedge plants, or other trees, and to communicate immediately with this Department, should any scale be found with which they are unacquainted, and which resembles in any way the description of San Jose Scale.

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A simple and apparently effective means of destroying the Fruit Fly, a description of which will be found in this Journal, has been discovered. Poison baits of various kinds have been tried for reducing the number of this pest. These have all consisted of some sweet or sticky substance containing a larger or smaller amount of poison, the object being to first attract the fly by providing it with a suitable food more easily obtained than the juice of the ripe fruit, which would prove fatal when partaken of. Most of these methods have been attended with indifferent success.

The use of paraffin has not suggested itself before, as it generally acts as a repellant to all insects. The attraction of this evil smelling fluid to the fruit fly is hard to explain, but the fact having been proved, no excuse exists for not putting it into use, the remedy being so simple.

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A description of the grades under which mealies are exported from Natal, and of the facilities offered to exporters is published in this Journal. The excessive handling at present necessary for transporting grain in bulk accounts to a large extent for the high cost of production. A more economical method than sewing it all up in mud sacks and frequently loading and unloading it by manual labour is certainly possible; the sacking, if necessary, should be done at the other end, where sacks are so much less expensive. Grain can, in a large measure, be handled like water, it can easily be poured from one level to another, it is simple to drain it from the bottom of a wagon, than to lift it over the side in sacks; it can be stored in bins as water is in tanks, transported both on the railway and farm in specially constructed wagons and trucks, and graded and handled in elevators with a minimum of cost. To obtain these facilities, however, a man must have no sentimental objection to losing sight of his own particular lot of grain, but co-operate freely with his neighbours to enable all to enjoy the advantages of cheap manipulation in bulk.

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## Soil Cultivation.

By J. CAMERON.

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Among the different soils in Rhodesia a general feature belonging to them is "rawness" or want of uniformity in the construction of the mass.

Although the different grades of soil grains may be present in the gross in the right proportions yet evenness of distribution in the mixture which is essential towards high fertility has in most cases to be made by cultivation.

But this rough and unmellowed condition is what necessarily must be expected in soils lying in a natural state and nothing discouraging is presented although the first returns after cultivation are somewhat disappointing.

Vlei soils and all soils rich in humus when they can be got into a fine state of tillage on the surface may yield well the first season.

In this case the fineness and evenness of distribution of the soil particles is already present, and aeration and nitrification are the chief calls for cultivation; but in red soils and all sandy soils the mass has got to be re-assorted over and over again before the best conditions for aeration and nitrification are secured.

Ploughing land to a certain depth, thus breaking up the soil and mixing it is the recognised method of cultivation, yet the full beneficial effects of ploughing are often missed through omitting to follow up the plough immediately with the harrows.

After the soil is broken up and loosened with the plough the more intimate pulverising action is best accomplished with the harrows. The mulching effect of instant harrowing after ploughing is one of the most important things to be secured in the culture of soil in this country.

Since artificial manures are unfeasible and the supply of kraal manure is limited, there are no applicable substitutes in this country for a want of skill in culture.

In much of the occupied land, however, where large stores of plant food exist in a partially available condition, the vigorous use of the plough and harrows gives results nothing short of manuring.

## MEALIES.

Where mealies are to be grown on land newly broken up from the veld, even then a good deal can be done by cultivation after planting, towards helping the crop. The cultivation should be started between the rows as soon as the plants appear, and this operation repeated several times, but especially when the soil is in a somewhat friable state after rain.

Land that has been cultivated and ploughed in the winter months should be again turned over for the mealie crop, even although the soil is loose and pulverent. The

necessity for having a fresh bed for the mealies arises from the requirements of the nitrifying organisms for fresh soil.

Thus the last ploughing which the land is to receive should be as near the planting season as possible.

Where large areas are dealt with, and an early start with ploughing has to be made, the harrowing should be left over until planting time, when considerable freshening up will be given to the soil through this being done.

In all cases ploughing should be done efficiently—that is, the furrow to the desired depth should be cleared out and turned over. Harrowing should be repeated before planting until the surface feels firm and appears uniform and level, an extra harrowing means perhaps more than a bag per acre.

It is in the earlier stages of growth that cultivation between the rows is most salutary to the soil, and this should be proceeded with as soon as the plants are a few inches high. The effect of cultivation between the rows is a good deal less after the plants are in full leaf, but in damp vleis soils there is a good deal gained by banking up mealies at this stage like potatoes. This plan is very effective in killing weeds in cases where the land may have been too wet for cultivation between the rows. This banking up is done with a single plough throwing a light furrow up to the base of the mealie stalk on each side of the row.

## POTATOES.

Land intended for potatoes should be of a friable nature, not tending to become hard and brick-like when dry. The soil should also be dry and not liable to become waterlogged in wet weather. Soils of a sandy nature are best for potatoes.

The land should be ploughed and harrowed till it shows even and pulverent. It is nearly always necessary that manure should be applied to potatoes, and this may be done in the winter season and ploughed in or applied along with the crop at planting. Three or four wagon loads per acre are sufficient in giving telling results.

The rows for potatoes should be 32 to 34 inches apart and 12 to 15 inches between the setts.

For a large breadth, the ground should be previously prepared and manured; a three-furrow plough may then be used, set to take in the required breadth between the rows, and the potatoes planted in the side of the last furrow at the required distances apart and at about 4 inches from the surface. The bottom of the furrow would be too deep. The surface should then be harrowed, making the land uniform and level.

Cultivation between the rows should be pursued as soon as the plants come up, and the banking up will follow before the tops are half grown. After banking up nothing is gained by further disturbing the soil about a potato crop. In all root crops the same principles apply—that the land be thoroughly prepared before sowing, and the after cultivation actively pursued during the early stages of growth.

### LUCERNE.

In laying down lucerne steps must be taken to get the land into a condition as free of weeds as possible.

For accomplishing this the piece of land chosen should have been ploughed and harrowed early in the winter. When the rains come on the weeds should be allowed to come up until the whole fleece appears in full leaf. The land should then be ploughed, turning all the weeds in and covering them and the land harrowed. In the course of ten days or a fortnight the land should be stirred with a cultivator, or, if too rough, should be again ploughed and harrowed, forming the seed bed. The land should be thoroughly harrowed, making a fine tilth with a smooth firm surface.

The seed should be sown broadcast at the rate of 15 to 20 lbs. per acre, and lightly covered in with a bush harrow. Ordinary tine harrows let the seed in too deeply. The latter part of December is about the best time for sowing lucerne, but in damp cloudy weather favourable to germination, it might do even later.

After the lucerne has come up an inch or two, and if weeds begin showing too thickly, the ordinary harrows may be freely used in going over the ground. This keeps down the weeds and prevents the surface from hardening.

Lucerne that is intended for being under irrigation should be sown in rows 18 inches apart, which admits of suitable methods of cultivation and application of the water.

Lucerne needs a deep open soil with a certain amount of lime in its composition, but it also requires high culture in order to get it past the tender stages of growth.

### TOBACCO.

Perhaps to no crop does the importance of thorough cultivation apply with more force than in the case of tobacco.

For this crop the selection of the soil is not made with an eye to richness or crop growing power, but on qualities based on porosity and friability.

It thus happens that the best tobacco lands are poor or even deficient in humus. In this climate soils that are rich in humus are unsuited for tobacco, because the fact of a soil being full of humus shows that some condition exists making it too retentive.

It is highly probable however that certain soils have only to be drained, when this objection would be removed.

In a gross feeding plant like tobacco, two antagonistic factors have to be dealt with in order to secure quality in the leaf, and the problem is to grow large crops on a soil that is naturally poor.

Herein then, cultivation goes a long way. In these tobacco soils the inorganic elements of fertility are there in a more or less available condition, and they have got to be stirred into action perseveringly, but along with the condition that the organic or nitrogenous element is only limited.

Thus a soil containing 10 per cent. organic matter is too strong for tobacco, while a soil containing 2 per cent. may be suitable, but deficient in nitrogen.

In the latter case the mere fact of the organic matter being low shows the capacity of the soil for dissipating it, and hence the application of kraal manure or green manuring is not attended with any deleterious results because the quantities are absorbed yearly as they are applied and never accumulate so as to affect the total humus to an injurious extent.

The best results are not to be expected from even a good tobacco soil the first year. It takes thorough cultivation extended over several seasons before the soil is sufficiently homogeneous for producing an equal standing crop having a uniform grade of quality.

Tobacco land should be worked up to a fine tilth before planting out, and cultivation between the rows commenced early.

### GREEN MANURING.

It is perhaps in connection with tobacco that the question of manuring of soils will first have to be seriously tackled.

A good deal has been said about green manuring, and some consideration may be given as to what it means and implies.

It is not feasible to green manure a field and grow a crop of tobacco thereon the same year.

It is just possible that it could be done in an abnormal season when the first rains come in September, but in the average season with the rains in November, the time is too short before planting out.

If the tobacco is not planted out sufficiently early the frost may come on before it is ready for harvesting. Then if it be tried to grow any crop after the tobacco is harvested, when the rains are over, the soil is too dry to grow anything.

The matter practically resolves itself to this, that in order to carry out green manuring the land must be fallowed a season for that purpose. Particular attention must be paid, however, as to how it is done even then, if satisfactory results are to be expected.

In this climate, during the summer or rainy season, decay and nitrification proceed rapidly. If a crop of any kind is ploughed in green say about the New Year, it will be found in less than six weeks' time that not a vestige of it will appear in the soil. Now if at this time heavy rains should come, which generally do come at that season, then the nitrates that have been formed are leached out and most of the benefit arising from green manuring thereby dissipated and lost.

In order to minimise as much as possible the almost inevitable loss of nitrates through fallowing, the weeds should first be allowed to come a certain length and ploughed in say about the New Year or before.

The crop intended for green manure, whether beans, lupins, clover or mealies should be sown sometime in January. The general idea is that the crop should be at the right stage for ploughing in—that is in full leaf, about the time the rains are nearly over, sometime in March. If now this green matter is ploughed in when the land is dry and the rains over, the conditions for rapid decay no longer exist and the organic matter will remain in the soil until the advent of the next rainy season when it becomes available for the season's crop.

It is not enough that the whole season's growth, whether weeds or a sown crop be left standing until the rains are over and then ploughed in. If this is done the weeds are all seeded and the stalks dry, withered matter, of little manurial value. It is when plants are young and green that they are of the highest manurial value.

The essential point to make for in fallowing is to obviate as far as possible the loss of nitrates.

In regard to this it may be kept in view that in order to secure satisfactory results from green manuring, it is not essential that leguminous crops only should be utilised. Mealies, are good enough for the purpose. Kafir mealies sown broadcast at the rate of 50 lbs. or so per acre, in February sometime after the first ploughing will conserve far more nitrates in the soil than a precarious and more uncertain leguminous crop. The mealies will assimilate almost the whole of the nitrates that are formed, thus conserving and carrying them forward until the next season.

Moreover, the mechanical effect of a bulky crop like mealies being ploughed in has an important bearing on the moisture holding power of these light tobacco soils.

Although as a rotation crop legumes possess distinct advantages in increasing the soil nitrogen, yet in fallowing land for green manuring the more bulky crop of mealies will under the prevailing circumstances, leave a larger gross amount of nitrogen in the soil than the smaller and considerably richer legume.

It must be borne in mind also that the cost of seeding per acre is an item that has to be taken into account.

Some correspondence from the farmers giving their experience on methods of cultivation and manuring would prove highly useful.

## **The Land Settlement Farm, Marandellas.**

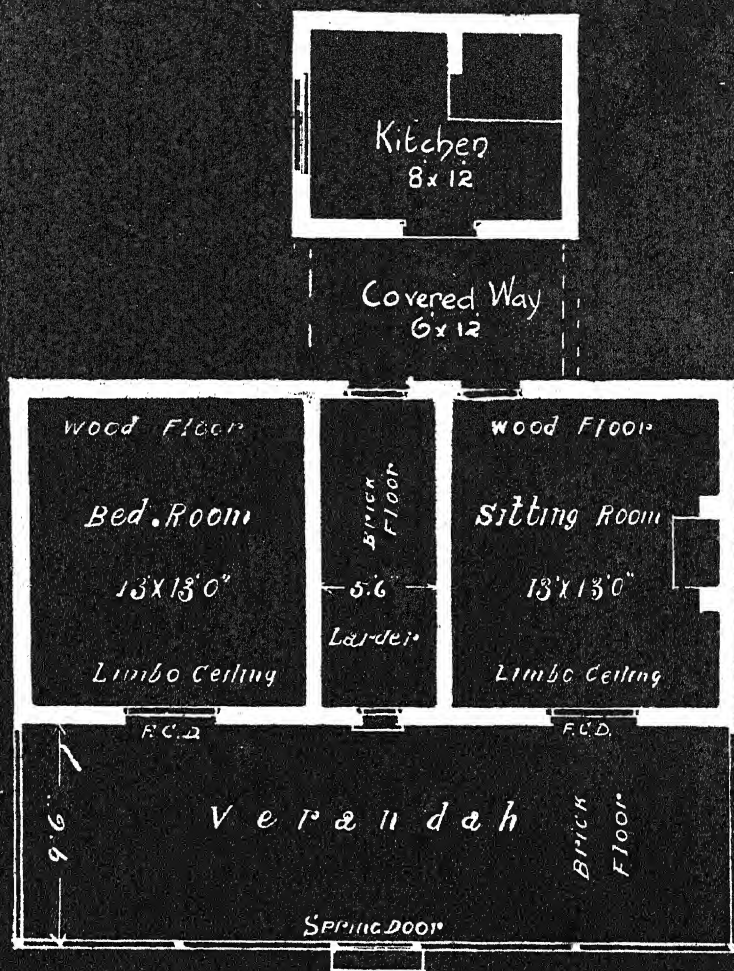
Arriving by the dim light of the new moon, the first impressions of any place are distinctly vague. Small hills loom large, and all places assume a certain beauty in the fickle light.

The drive from Marandellas, some 20 miles, in a comfortable, if not particularly solid vehicle, takes one most of the way along a new road or track, recently surveyed out in as direct a line as possible to the Central Farm of the Settlement. The track is yet somewhat vague, especially to anyone travelling over it for the first time, except where it is cut through the bush in long straight avenues, but soon after leaving Marandellas one obtains a good view of Wedza in the far distance, and M'temwa, the special landmark of the Central Farm, in the middle distance. When more traffic has passed over this new road, it will be much improved, and with a better surface the time occupied in driving to the settlement will be considerably reduced.

Four days before my visit the new brick house, built for, and to a large extent by, the manager, Mr. H. Kay Scorrer, had been completed. The house, consisting of two rooms, each 14 by 14, with large larder or store between, 10 foot verandah in front and detached brick kitchen with covered way at back, is very comfortable and cool; the roof of the house is of thatch, verandah and kitchen being covered with iron, and the whole is being made mosquito proof. The floors of rooms are boarded, ceilings of limbo throughout. The cost of this house was £150, including brickmaking and superintendence. A photograph and ground plan is shown.

Other buildings are in course of erection, the work being entirely done by the settlers at present living on the Central Farm; the bricks used in both the house and the barn now in course of erection, were also made by the settlers; thus useful experience is gained in helping to erect these buildings, which will be of great value when they decide to take up a farm on their own account.

The central farm is situated under the shadow of M'temwa, a large bare granite kopje, acting as an excellent landmark for miles round. The country is at present looking its best, in places reminding one of an English park, with open glades surrounded by trees. The grass is plentiful, and most of it good sweet herbage, and at the

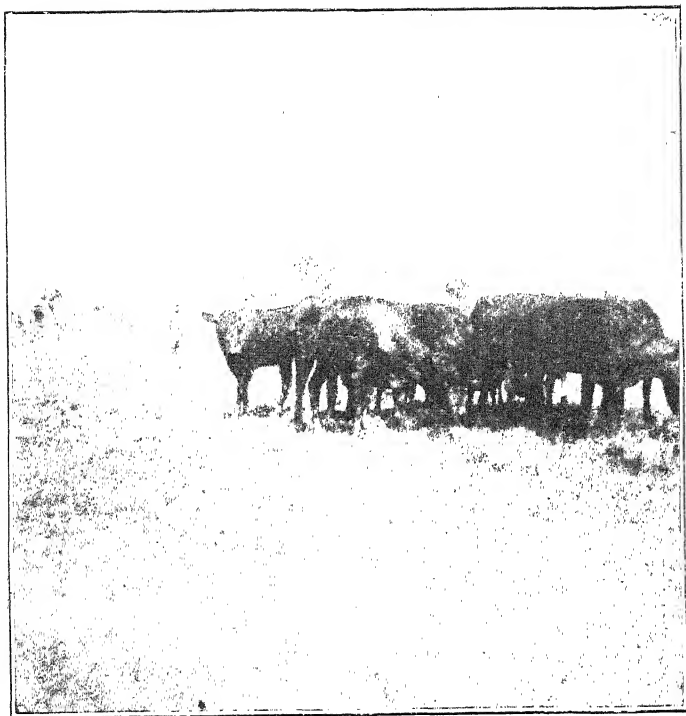


— PLAN —

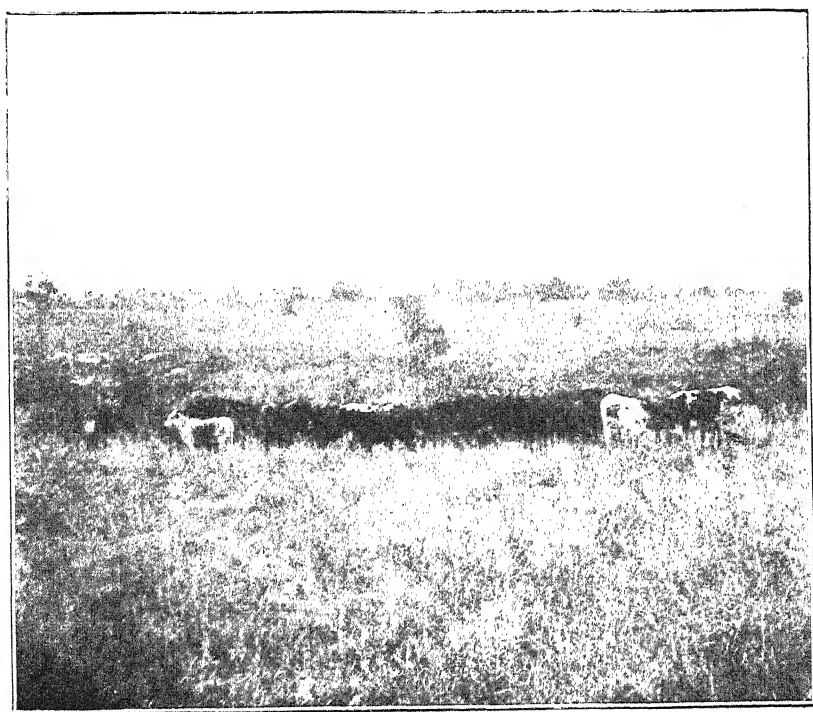


Barn in course of erection by S. A. Settler.

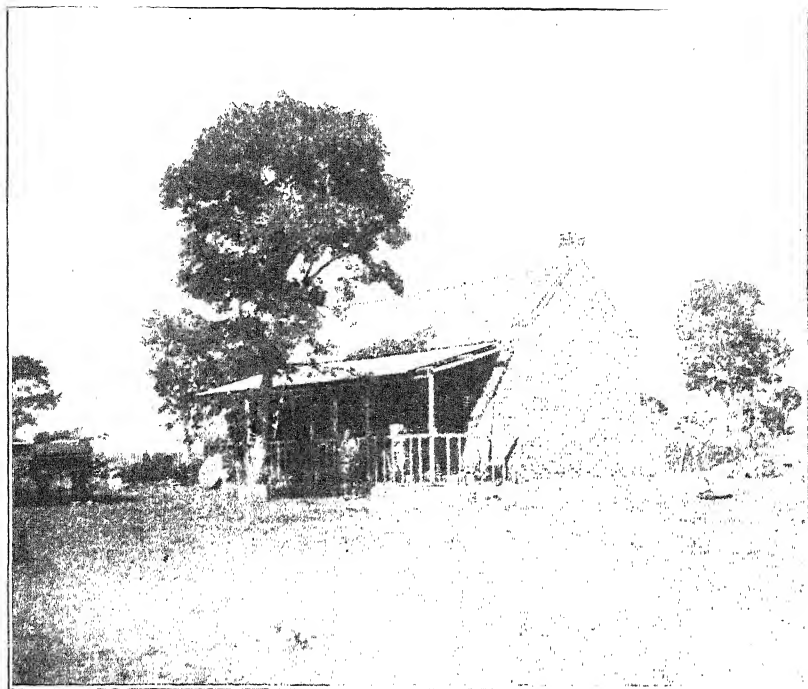




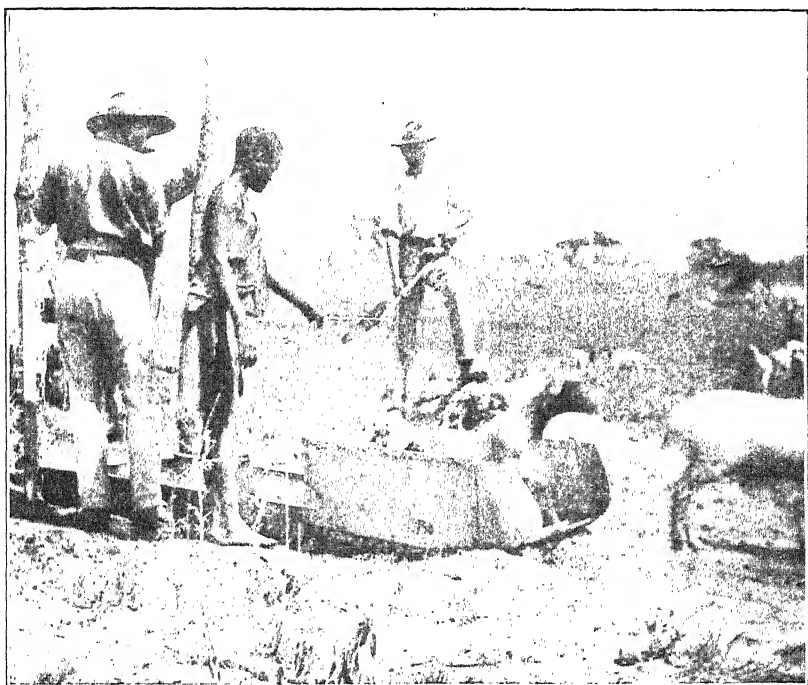
Part of the Herd of Devons.





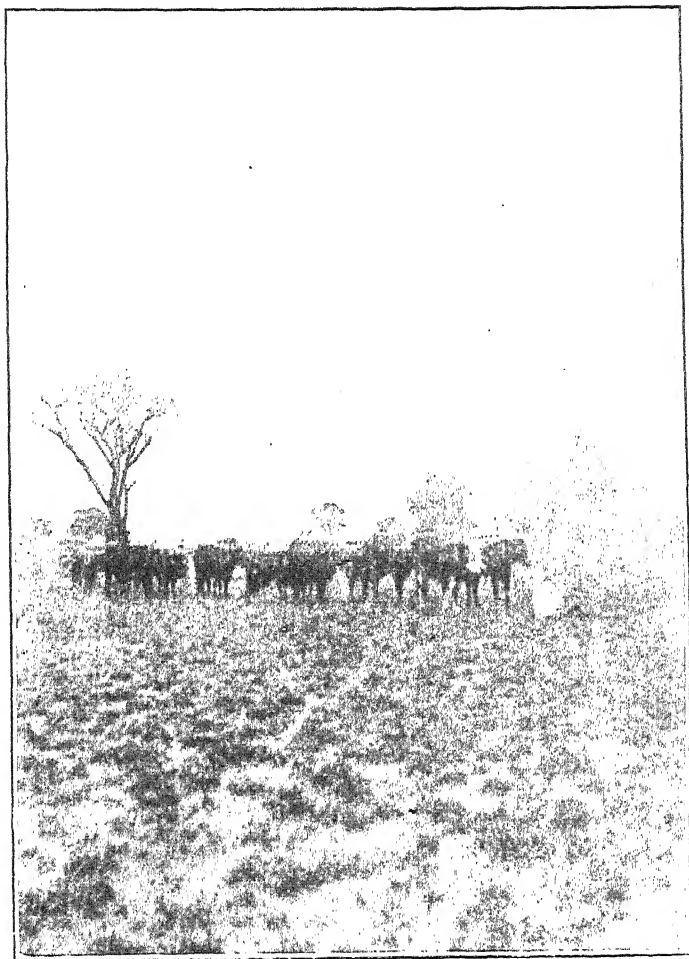


The Manager's House.



Dipping Sheep.





One of the Spans of Oxen.





Persian Merino Sheep.



Some of the Goats.



present time ideal for sheep; the cattle also, I was informed, had improved wonderfully in the last six or eight weeks, looking fat and sleek, in spite of having plenty of work to do.

One of the most interesting sights on the farm is the small herd of Devons, purchased from Mr. W. R. Southey, of Schoombie, and selected by Mr. Sheppey. The bull should leave some good stock, his sire "Joker" (4792) was a prize winner at the R.A.S. Show (England) and the settlers will have the opportunity of purchasing his progeny.

The homestead has been laid out with great care and forethought. In front of the house is the orchard, containing so far but few trees, but with holes ready prepared to plant some hundreds immediately on arrival. These trees are now on their way to the farm. The soil in the orchard has been pronounced as excellent for citrus trees by Mr. McIlwaine. At the present rate of progress the space behind the house will soon be covered with the proposed out-buildings. A large barn is already half built, and as soon as finished the main sheds, consisting of an L shaped building, with the corner facing the prevailing wind, will be begun.

On the sheltered side of this building are to be the cow byres and calf shed, on the exterior the pig styes, implement shed, and another barn; the cow sheds will open on to a fenced paddock leading down to the river.

A dairy is also to be erected; and a tobacco barn if the crop warrants it.

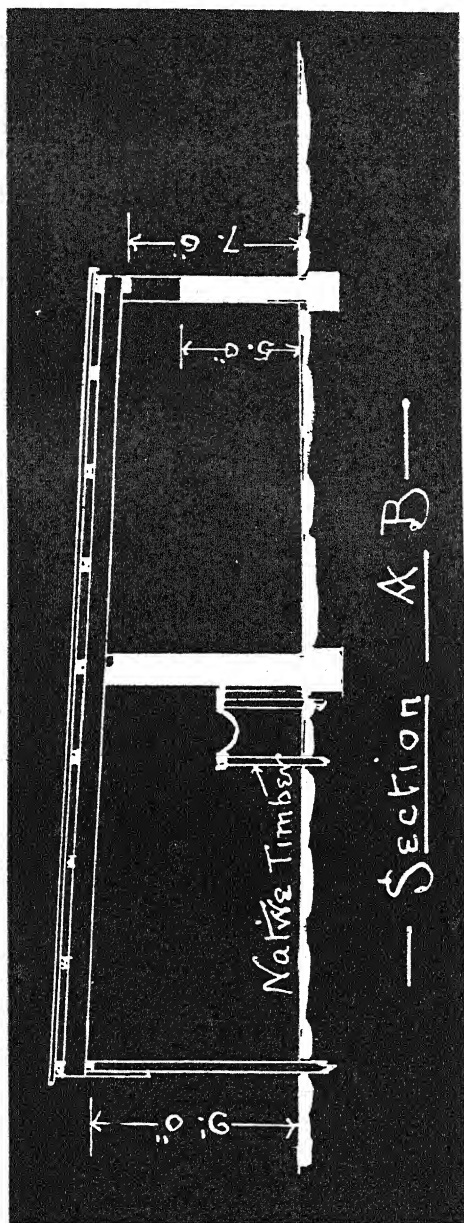
The small stock on the farm consists of a flock of Persian Merino ewes and a pure-bred Persian ram, and some milking goats with a Swiss ram; these are all doing well, especially the lambs and kids.

A fine Berkshire boar is also available for stud purposes, and some pure-bred sows of the same breed are now being sent down to the farm.

The lands are situated on the North-east of the homestead. The district is undoubtedly more suited to stock farming than agriculture, but experiments with commercial fertilisers are to be carried out, and kraal manure is also being applied to one section, the results of these experiments will be particularly interesting, and will be published in this Journal.

A large seed bed of *Paspalum* has been sown, that the valuable properties of this excellent grass may be well





Proposed Farm Buildings, Marandellas.

## Mealie Export.

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Some few data with regard to the over-sea maize markets will be of interest, in anticipation of another good season and a possible surplus for export.

The following is a list of the grades and conditions for export adopted by the Government of Natal.

### No. 1.—WHITE FLAT MEALIES.

Shall be sound, dry, plump, well cleaned, and the grain nearly even in size. Occasional straw-coloured spots on the grain shall not deprive it of its grade.

### No. 2.—WHITE MEALIES (Flat Variety).

Shall be sound, dry, and reasonably clean, but an occasional yellow berry shall not deprive it of its grade.

### No. 3.—WHITE MEALIE (Flat Variety).

Shall be dry. Berries may be of irregular size and shape, and a reasonable quantity not exceeding  $12\frac{1}{2}$  per cent. may be yellow or discoloured berries.

### No. 1.—WHITE COAST MEALIES.

Shall be bright, dry, sound and well cleaned. May be round or round and flat mixed. An occasional coloured berry shall not deprive it of its grade.

### No. 2.—MIXED MEALIES.

Shall be dry, sound and reasonably clean. May be round, or a mixture of round and flat. Chiefly white, but may contain up to 25 per cent. of yellow or blue berries.

### No. 3.—MIXED MEALIES.

Shall be dry. May be round, flat, or a mixture of both; chiefly yellow and white. A reasonable percentage of blue berries allowed.

### No. 1.—YELLOW FLAT MEALIES.

Shall be bright, sound, dry, plump, and well cleaned.

## No. 2.—YELLOW FLAT MEALIES.

Shall be sound, dry, reasonably clean. An occasional white, red or faulty berry shall not deprive it of its grade.

## No. 1.—YELLOW ROUND MEALIES.

Shall be bright, sound, dry, plump, and well cleaned.

## No. 2.—YELLOW ROUND MEALIES.

Shall be sound, dry and reasonably clean. An occasional white, red or faulty berry shall not deprive it of its grade.

## No. 3.—MIXED YELLOW MEALIES.

Shall be dry, may be round, flat, or a mixture of both. Should you wish to export mealies and to avail yourself of the grading system under which the mealies are to be sold to arrive on samples previously sent home to England, it will be necessary for you to notify the Secretary, Minister of Agriculture, of the quantity you intend to export, and the probable date of arrival of the consignment in Durban.

The mealies must be graded in Durban from an inspection of the consignment by the expert appointed by the Government; and you will be notified as soon as possible of the grade under which they have been so classified by the Government Inspector. The bills of lading will be duly endorsed with the grade, and arrangements will also be made for the mealies to be weighed, and the weight of the consignment endorsed on the shipping documents. Arrangements must be made by the shippers themselves for the insurance of the consignment.

The mealies can, if required, be consigned to the Agent-General in London, who will sell them to the best advantage, and the money so realised will be cabled out to Natal by the Natal Bank free of expense to the consignor.

The samples of the various grades are being sent to the Agent-General in London, and it is intended to cable to the Agent-General as each shipment leaves the port, notifying him of the number of bags and grades, so that the consignments can be sold before arrival. If this

course is not followed, the mealies will have to take their chance on arrival in London, and extra expense will be incurred in connection with handling and warehousing.

The prices which have been realised for American and European mealies on the English markets during the last six months, average from 21s. 6d. to 26s. 6d. per quarter of 480 lbs., according to the season and the quality of the grain.

It should be seen that the full 203 lbs. of mealies are placed in sound bags, which must be well sewn with double twine and made secure. Each bag sent forward for export must be clearly marked with the exporter's private mark.

As this is the initial stage in the export of Natal mealies, it is imperative that each exporter supplies mealies of uniform quality and of proper weight, otherwise our mealies will obtain a bad name on the Home markets, and the endeavours of the Government to establish the export trade will prove ineffectual.

It is particularly requested that your private mark should be placed on the top of the sacks, within three inches of the sewn end.

The terms mentioned in the above circular letter hold good for mealies from any part of South Africa.

A communication from the Natal Agricultural Department received in October states that No. 1 grade mealies realised 26s. 9d. per quarter (480 lbs.) equal to 11s. 1 $\frac{3}{4}$ d. per muid.

The maize crop in the principal producing countries of Europe is estimated as being considerably smaller than that of last year, as the following table will show:—

	1907 (Qrs.)	1906 (Qrs.)
Roumania ... ..	7,500,000	15,750,000
Bulgaria ... ..	2,000,000	2,000,000
Servia ... ..	2,750,000	3,250,000
Hungary ... ..	20,000,000	19,000,000
Russia ... ..	5,970,000	8,250,000
Total ... ..	38,220,000	48,250,000
America ... ..	290,000,000	340,000,000
Grand total ...	328,220,000	388,250,000

The condition of the American is also unfavourable. The September report of the Washington Bureau indicated a yield of 2,500 million bushels, against 2,900 millions last year, but subsequent conditions have been decidedly unfavourable for the maturing of the crop, and there is no doubt, according to the "Cincinnati Price Current," and other authorities, that damage by frost resulted during the week under review. How serious this damage may be remains to be seen, but the crop is peculiarly susceptible this season, being so late.

In Beerbohm's Evening Corn Trade List for the week ending September 13th, is the following:—

"With the probability of short crops in both America and Roumania this year, and with what seems likely to prove a dear season for wheat, the possibilities are greatly in favour of a decidedly high level of prices also for maize.

"The world's maize consumption is, of course, a varying quantity, which adapts itself to price and the quantity available. During the past season the consumption has been enormous: it remains to be seen whether the relatively high prices, which appear likely to prevail during the coming season will seriously affect the rate of consumption."

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## **Prevention of Potato Blight.**

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The following pamphlet, published by the Department of Agriculture and Technical Instruction for Ireland, and kindly forwarded to this Department by Mr. R. A. Blake, of Gwelo, should prove of value to potato growers in this country.

Mr. Blake in his letter, says: "From the leaflet it appears that the Sulphate of Copper and Soda has given the best results, and would I think be preferable in this country, where good unslaked lime is not easily procured."

The experience of recent years has conclusively proved that the loss caused by potato blight can be, to a great extent, prevented by spraying—an operation which has now come to be regarded as an essential part of the work connected with the successful cultivation of the potato crop. The reports received by the Department

from a large number of districts show that those who take the trouble to carry out the work properly are abundantly rewarded, while those who neglect to spray suffer heavy loss both in the quantity and quality of the crop.

The following table shows the results of spraying experiments carried out at the Department's Agricultural Stations during the years 1900—5 inclusive:—

—	No. of Tests,	Mixture Used,	Average Total Yield per Statute Acre,		Average Increase per Statute Acre from Spraying,	
			Sprayed,	Un-sprayed,		
			Tons, Cwt.	Tons, Cwt.	Tons, Cwt.	
1900	3	Sulphate of Copper and Lime	10 9	7 16	2 13	
	3	Sulphate of Copper and Washing Soda.	11 16	7 16	4 0	
1901	3	Sulphate of Copper and Lime	13 18	12 4	1 14	
	3	Sulphate of Copper and Washing Soda.	14 6	12 4	2 2	
1902	3	Sulphate of Copper and Lime	12 17	10 11	2 6	
	3	Sulphate of Copper and Washing Soda.	13 6	10 11	2 15	
1903	3	Sulphate of Copper and Lime	12 0	10 18	1 2	
	3	Sulphate of Copper and Washing Soda.	12 3	10 18	1 5	
1904	3	Sulphate of Copper and Lime	9 11	8 18	0 13	
	3	Sulphate of Copper and Washing Soda.	10 12	8 18	1 14	
1905	3	Sulphate of Copper and Washing Soda.	11 6	8 6	3 0	
Average	15	Sulphate of Copper and Lime.	11 15	10 1	1 14	
	18	Sulphate of Copper and Washing Soda.	12 5	9 15	2 10	

The Department wish to urge upon all farmers and agricultural societies who have not already provided themselves with sprayers and spraying materials, the necessity of at once taking measures to obtain them, and to have their potatoes treated in good time.

### SPRAYING MIXTURES.

The Department recommend either of the following two mixtures, viz.:—

1. Sulphate of Copper and Lime.
2. Sulphate of Copper and Washing Soda.\*

\* Washing Soda is also known as Carbonate of Soda.

Farmers are advised to insist upon being supplied with pure materials only, and are strongly urged to prepare their own mixtures.

## PREPARATION OF MIXTURES.

### I. SULPHATE OF COPPER AND LIME.

(Bordeaux Mixture.)

This mixture is made in the following proportions :—

- 2 lb. sulphate of copper of 98 per cent. purity.
- 1 lb. unslaked lime of the best quality.
- 10 gallons clean water.

In most cases farmers use a paraffin barrel of forty gallons capacity for preparing the mixture. From this amount four times the above quantities will be required, namely :—

- 8 lb. sulphate of copper.
- 4 lb. lime (weighed before being slaked).
- 40 gallons water.

The preparation of the mixture should be set about in the following manner :—

Thoroughly wash out the barrel and pour into it thirty-five gallons of clean water. The 8 lb. of sulphate of copper should then be put into a canvas bag or tied up in a piece of canvas cloth, and put into and moved about in the water in the barrel until the crystals are dissolved. This operation can be more quickly accomplished if the crystals of sulphate of copper are previously ground.

Having prepared the solution of sulphate of copper, next prepare the milk of lime. For this purpose procure a wooden tub holding five gallons, and also a bucket. Put into the bucket 4 lb. of good freshly-burnt unslaked lime. Sprinkle it with sufficient water to change it to a powder. Then add sufficient water to fill the bucket. This, when it has been well stirred up, will make a thin milky fluid. Pour this into the tub and add thereto sufficient water to cool the mixture and to bring the quantity up to five gallons. After being thoroughly stirred it may be slowly poured through a fine sieve, such as is usually

sold with the spraying machines, into the barrel containing the copper sulphate solution. The contents of the barrel should be continuously stirred while the milk of lime is being added to it. The mixture should then be of a bluish colour, and is ready for use, but it should be well stirred each time the sprayer is filled from it.

*Note.*—Even when the above conditions are accurately carried out, the mixture may not give the best results, owing to differences in the strength of the sulphate of copper and of the lime. Those who wish to get the best results should dip a piece of blue litmus paper in the prepared mixture. If the paper becomes red, a further quantity of milk of lime should be prepared and added in small quantities at a time to the preparation, and with continuous stirring until a fresh piece of paper dipped in the mixture remains blue. One pennyworth of litmus paper, which may be obtained from any chemist, is sufficient for a large number of tests. Any farmer who has difficulty in procuring such paper, and who is anxious to get the best results for his labour, will be supplied free of charge by the Department with a sample on receipt of a fully addressed envelope.

## II. SULPHATE OF COPPER AND WASHING SODA.

(Burgundy Mixture.)

This mixture is made in the following proportions:—

- 2 lb. sulphate of copper of 98 per cent. purity.
- 2½ lb. pure washing soda.
- 10 gallons clean water.

Or, if a forty gallon paraffin barrel of the mixture is to be prepared, four times the above quantities will be required, namely:—

- 8 lb. sulphate of copper.
- 10 lb. washing soda.
- 40 gallons water.

To prepare this mixture proceed to dissolve the sulphate of copper exactly as has been described for No. 1 Mixture, viz., dissolve the 8 lb. of sulphate of copper in thirty-five gallons of water in the paraffin barrel. Dissolve the 10 lb. of washing soda in five gallons of water in a

separate vessel. Then pour the washing soda solution slowly into the copper sulphate solution in the barrel, stirring continuously. The mixture should then be ready for use, but in order to secure the best results the blue litmus paper test should also be applied to it. If the paper turns red, more washing soda must be dissolved and added in small quantities at a time to the mixture until fresh paper put into the solution remains blue. It is then quite ready for application.

The following points should be kept in mind:—

1. All the vessels coming in contact with the sulphate of copper should be of wood and not of metal.

2. It will save much time and annoyance if every possible precaution is taken to have the mixture free from grit, or any other foreign matter which would stop the nozzles of the sprayers. For this reason the water used should be drained through a piece of canvas or other suitable cloth.

3. The milk of lime or washing soda solution should always be poured into the sulphate of copper, and not conversely.

4. Effective stirring in every stage of the operation is most essential to success.

5. Sulphate of copper is poisonous, therefore the vessels in which sulphate of copper mixtures have been prepared should not afterwards be used to hold food or water for consumption.

#### ADVANTAGES OF USING THE SULPHATE OF COPPER AND WASHING SODA MIXTURE.

The use of washing soda is generally preferable to lime for the following reasons:—

1. The mixture adheres longer to the foliage of the plants, and is not so readily washed off by rain.

2. The mixture can be more easily prepared.

3. The nozzles of the machine are not so liable to become stopped with grit or refuse material.

#### APPLICATION OF THE MIXTURE.

Spraying should be done before signs of disease are observed in the crop. It is therefore desirable that the first dressing should take place about the end of June before the disease appears. A second spraying should be given

about three or four weeks after the first application, as in that interval a large quantity of foliage will have developed, and a considerable portion of the original dressing may possibly have been washed off by rain. A third dressing may sometimes be advisable, especially if the weather is very wet.

The best results can only be obtained when a sufficiently high pressure is maintained in the sprayer for the mixture to be forced out as a very fine spray; by this means the foliage can be completely covered, and there is little waste through the mixture falling on the ground.

Experiments indicate that the best results are obtained when the spray can be effectively applied from underneath *upwards*. The under surface of the leaves on which the disease first appears is thereby dressed while a considerable amount of spray will also fall on the upper surface of the leaves.

Spraying should be done during dry weather. If rain should fall heavily soon after spraying, examine the foliage, and if the mixture has been washed off to a considerable extent, spray again. Spraying should be suspended while the foliage is wet.

### QUANTITY PER ACRE.

The quantity of the mixture to be applied per acre is approximately as follows:—

For an average crop of potatoes with fully developed foliage about 100 gallons per statute acre, equal to 162 gallons per Irish acre.

For a crop of potatoes with a small amount of foliage, a somewhat less quantity will suffice.

### CARE OF SPRAYER.

The external bearings of the spraying machine should be frequently oiled, but care should be taken not to let any of the oil get upon the rubber parts of the machine. The machine should be well washed out with water immediately after use, and thoroughly cleaned and dried before being put away.

Department of Agriculture and  
Technical Instruction for Ireland,  
April, 1907.

## Onion Growing.

This valuable vegetable does not receive the value it deserves in this country, and considering the large number of onions that are yearly imported they should prove a profitable crop to grow.

Excellent onions are already grown in this country, and there seems no reason why their cultivation should not be extended.

### SOILS.

Onions will, with proper treatment, grow in almost any soil, a rich sandy loam, deep, and easy to work is most suitable, poor soils require liberal manuring to secure the best results. Well drained land with a slight slope should be selected so that in the case of heavy rains the bulbs are not exposed or buried. The slope of the land should if possible be towards the east or south-east, as onions do not require excessive heat to bring them to perfection.

It is best to plough the land on which it is proposed to grow this crop some time before sowing, to allow it to become disintegrated by the action of the weather, and also to give it two or three harrowings to kill all weeds and obtain a fine tilth.

Onions require a good firm seed bed: the land should therefore be rolled before sowing, otherwise if the seed is put in too loose soil the crop produced will be more neck than bulb.

### SEED BED.

There are three ways of sowing onion seed, either broadcast, or with a drill, or in a seed bed, and afterwards planting out. Probably the most satisfactory and economical way is to drill them in rows 12 to 15 inches apart, at the rate of two to three pounds of seed per acre. These drills will require thinning out by hand afterwards, so as to leave the plants six inches apart in the rows. The seed must be only lightly covered, for if buried too deep a large proportion will not germinate. When the seed is sown in a seed bed, it should be just damped with water, and then sprinkled with flour, so that it is possible to see where the seed is going and the danger of overcrowding in the bed is avoided. After lightly covering the seed with fine earth, the bed should be watered, and then covered with a mulch, which is removed as soon as the

onions show above ground. It is advisable to sow the seed at intervals when several acres have to be planted out, as there is a risk of the young seedlings suffering before they can all be transplanted if they are all sown at the same time.

When the onions are about four or five inches high they are ready to be moved. A day or two before planting out the seed beds should be well watered to allow the plants to be got up without unduly disturbing the soil about the roots.

Transplanting entails more trouble than sowing direct in the field, but it has very considerable advantages, particularly in economy of seed and increase of yield.

The crop should be kept absolutely free from weeds, and the bulbs allowed to rest on the top of the ground, and not be covered with soil.

When the tops of the onions begin to dry off, they are ready to be harvested. This is done by pulling by hand and leaving them on the ground to dry. When dry they are cleaned, the dry leaves and tops pulled off, and the crop stored in a cool, well-ventilated place till sold, or required for use.

## **A Food for Chickens.**

### **SKIM MILK.**

Skim milk has long been known as a wholesome and particularly valuable food for feeding chickens at all stages of their growth, from shell to table, and in the table poultry districts of the south-east of England it is extensively used while the young birds are on range, and still more when they are confined in coops for fattening. The great value of skim milk is, however, more clearly shown by many experiments which have been conducted by the Government experiment stations of several American states, and from the reports issued by the foremost of these I have compiled a few brief summaries, to show the real value of skim milk as a food for young stock. One of the most important experiments was that conducted by the Indiana Experiment Station, where young chickens weighing about a pound and a half each were fed on a mixture of various meals; but whilst the mash for one lot was mixed with water only, that for the other was moistened with skim milk, and besides, the second lot

got all the milk they would drink, whilst the first got none. The trial was carried on for six weeks, and it was found that the skim milk fed lot ate more food, kept in healthier condition, and made far greater gain in weight, at less cost per pound. A table of figures contained in the report shows that the lot fed on skim milk made an average gain of 1 lb. 7 oz. per head, at a cost for food of  $3\frac{1}{2}$  cents per pound, and that the lot which received no milk gained only 12.6 oz., at a cost of  $4\frac{1}{2}$  cents per pound.

### ANOTHER EXPERIMENT.

The records published by Maine Experiment Station show that several lots of chickens were taken at 140 days old, and having been fed for four weeks on fattening rations, made up in various ways, those which had been fed all the skim milk they would take came out far ahead of lots which had been fed animal food, and various mixtures calculated to take the place of milk. In one case, when the same meals were fed to two lots, but one was mixed with milk and the other with water, the former food caused a gain of twenty-five per cent. above the latter.

At the Ottawa Station also, the gain in a large number of chickens fed on meals mixed with milk was from fifteen to thirty per cent. greater than the gain of chickens similarly fed in all respects, except that they received no milk in their food or otherwise. The milk-fed chickens also dressed plumper, larger, and better in appearance than the others, and the texture and flavour of their flesh were far superior. With regard to

### THE COST OF REARING CHICKENS,

it is pointed out in a report of the New York State Station that the average cost of raising chickens to the weight of 2.4 lb. each, when supplied constantly with milk to drink and in the food, is about thirteen cents, also that the average cost per pound to  $3\frac{1}{2}$  lb. is not more than six cents, and that consequently it would be as profitable for farmers to feed skim milk to chickens as to feed it to pigs or calves. All the reports on this subject which I have seen point to the same conclusion, that it is expedient to feed skim milk to poultry, taking into consideration both its cost as a food and the gain in weight and in quality of flesh from its use.

H. DE COURCY.

## Importation of Bulls into North Eastern Rhodesia.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

Sir,—

I think that some notice should appear in your excellent Journal of the great success attending the recent importation by the British South African Company of the twenty pure-bred English bulls into North Eastern Rhodesia. The bulls, ten Polled Angus, seven Devons, and three Shorthorns, were purchased by Mr. George C. Campbell (with the exception of two) under the direction of the British South African Company, and were brought out by him without the loss of a single animal, arriving in this country in the best possible condition.

There being such a large number, this is quite remarkable, taking into consideration the well-known difficulties of transport from Chinde to Tete and the overland journey along the not too well known Missale road through Portuguese territory from Tete—saying nothing of the long sea voyage.

This speaks volumes for the great care and attention given to the bulls by Mr. Campbell, to whom all thanks are due from the farming community here, as well as to the Government, and to our late and regretted Administrator, Mr. Robert Codrington, for the generous terms of payment allowed us on the imported stock.

With the exception of four bulls for the Government Farm, the imported animals were ordered by the cattle ranchers near Fort Jameson. Their cost landed, including everything, comes out at a little over fifty pounds a head.

Two of the bulls have lately died, but the symptoms were such as to cause no alarm, and all the others are doing well, and it is to be hoped the importation will be the beginning of a continuous prosperity in a fine country that has all before it.

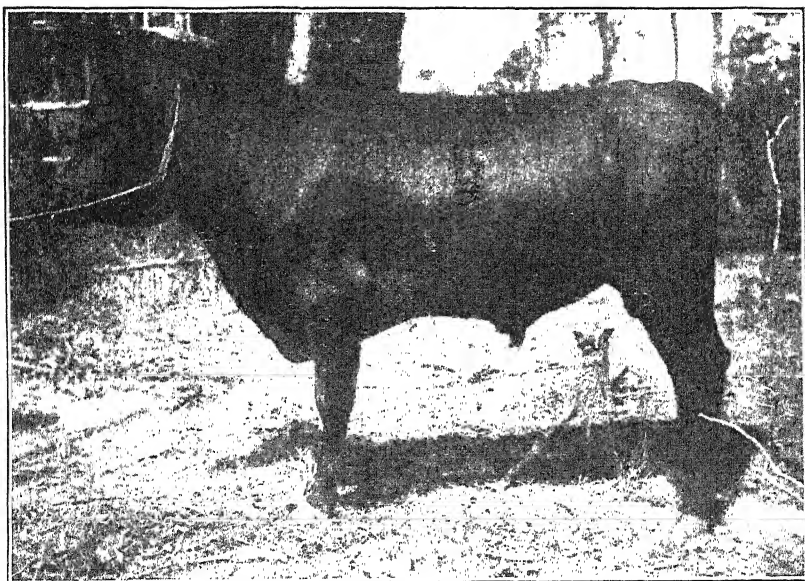
I am, Sir, yours, etc.,

T. A. BARNES.

Luambali Estate, Fort Jameson,  
September 18th, 1907.

P.S.—I enclose photographs.





“Penalty of Balliemore,”

Poled Angus at 18 months. Property of Mr. T. A. Barnes, Luambali Estate,  
Fort Jameson.



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## The Fruit Fly.

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Department of Agriculture,  
Hobart, Tasmania,

24th May, 1907.

Dear Sir,—

Some time ago a communication from St. Helena as to the extermination of the fruit fly was forwarded to me, and in reply I stated that probably the only chance you would have of exterminating that pest would be by gathering and destroying the whole of your fruit for one season.

Since then a most remarkable discovery was accidentally made in Western Australia, where it was found that pure Kerosene attracted the flies. This discovery has since been confirmed in New South Wales and Victoria, so that it is probable that the fruit fly (*Halterophora*, or *Ceratitis capitata*) will be attracted by Kerosene wherever it occurs. I send you a copy of part of an article from the Journal of the Department of Agriculture of Western Australia (April, 1907, p. 245), being so far as I am aware the only official report of its use, although newspaper reports have been plentiful, and I have had several letters from various entomologists confirming it.

Yours very truly,

ARTHUR M. LEA,

Government Entomologist.

Secretary,

Department of Agriculture,  
St. Helena.

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“Recently Mr. Devenish, of Guildford, discovered the fact that pure Kerosene Oil, when placed in an orchard or garden where the fruit fly (*Ceratitis capitata*) existed, attracted that fly; and by placing a shallow vessel containing some Kerosene in amongst the branches of the trees the flies would be destroyed by hundreds. Mr. E. F. B. Gull, also of Guildford, carried out, simultaneously with Mr. Devenish, promising experiments with Kerosene.

"Since my return to the State, in company with Mr. Newman, we made some experiments with the Kerosene in some close by gardens, with a view to ascertain if the flies were in reality attracted by the Kerosene Oil, or if their getting into it was purely accidental.

"Our experiment showed that there is nothing accidental in connection with their getting into the oil, but showed most clearly that the Kerosene really attracted the flies. A vessel containing some Kerosene was placed in the forks of a tree about 18 inches above the ground, and at a point where ordinary specimens of the flies are never noticed. Within 15 minutes after having placed the vessel in the position above mentioned, dozens of the flies could be noticed moving about the trunk of the tree making their way to the oil; and 18 hours later Mr. Newman removed and counted 124 fruit flies from the one vessel. Female flies removed from the oil showed upon examination to be fertile, being yet full of eggs."

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## San Jose Scale

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The recent discovery of San Jose Scale in the Orange River Colony constitutes a serious addition to the already long list of injurious insects and fungi against which the fruit grower has to continually wage war.

Although the scale is not known to have reached Rhodesia, and every effort will be made to keep it out, yet a description of it, together with an account of some of the injury it causes in places where it is prevalent, and the methods most successfully adopted to combat its ravages and prevent its increase will enable anyone who may have the misfortune to discover it in their orchard to take prompt measures towards its eradication.

Mr. H. T. Fernald, Ph.D., in a bulletin published by the Massachusetts Agricultural Experimental Station, gives an account of the life history of the San Jose Scale; the injury it causes; treatments for it; experiments for its control; and full directions for making and applying the lime sulphur wash.

"San Jose Scale, first discovered in Massachusetts about 1892, has become widely distributed since that time, and has now increased to such an extent as to be one of the

most serious pests. Its method of feeding is such, taken in connection with its size, as to render successful treatment extremely difficult, and the rapidity with which it increases in numbers is often sufficient to cause the destruction of a tree in a single season.

## HISTORY.

"The San Jose Scale is apparently a native of China, where it seems to be held more or less in check by a tiny lady-bird or lady-bug, *Chilocorus similis*, which feeds upon it. It was first discovered in America about 1879, and was named *Aspidiotus perniciosus* by Prof. J. H. Comstock, who wrote at that time of it: 'I think that it is the most pernicious scale insect known in the country.'

## LIFE HISTORY AND APPEARANCE.

"The full grown San Jose Scale is about the size of a pin head, quite flat, round (circular) in outline, and varying in colour, but usually greyish brown. It lies closely against the bark, leaves or fruit, and the part seen is not really the insect itself, but the shell or scale which covers it. If this scale be lifted with a pin, a very small, orange yellow speck will be found beneath it, and this is the scale insect.

"When winter sets in, the insects are present in all stages of growth, from those just born to those which are full grown and are themselves producing young. The winter, however, kills all except those which are from about one-third to two-thirds grown, so that no living adults can usually be found in early spring."

This of course refers to American climatic conditions, the life history of the scale in this country has not yet been studied, and may vary in certain respects under altered conditions.

"So far as is known these insects undergo no change during the winter, but when the sap begins to flow freely in the spring the young scales which survive resume their feeding on the sap, which was interrupted by the cold weather, and complete their growth.

"Reproduction then begins, the young being born alive, and this continues for about six weeks, each female producing an average of about 400 young. The young

insects are very small, and after their birth, crawl out from beneath the scale where they are born, and move about, seeking a place on which to settle. This takes rather more than a day, on an average, and during this time these tiny, yellow, crawling young may be seen wandering about. On finding a good location they become quiet, and each works its long beak through the bark (or surface of leaf or fruit, as the case may be) to where the sap of the tree can be obtained, and the insect sucks this sap for its food. Its legs now disappear, its body becomes hemispherical, and white, waxy threads appear on its back. These mat together to form a white covering or scale, and such young, recently formed scales are often very noticeable. Later, as the insect grows, it moults or sheds its skin, and the moulted skin is added to the scale, which because of this and by weathering, becomes darker, grayish or blackish, often showing rings of lighter or darker colour. The centre of the scale is the highest part, and around this is a circular depressed ring. If the insect beneath the scale is a female, the scale will remain nearly circular in outline; if a male, the scale is more oval or elongated in form. In a little more than a month from the time of its birth the insect becomes adult, and in turn begins to produce young, the first ones appearing at about the same time as the last ones of the preceding generation. These young develop in the same way as their parents, thus giving a succession of young through the summer, till winter stops the process.

"It is evident that the increase in numbers of this insect is very great; estimates on this point show that an average of 1,608,040,200 females will be produced from a single female in one season, with probably at least an equal number of males, a total starting from a single female of 3,216,080,400 individuals!

"This estimate makes no allowance for loss by accidental destruction, but this is undoubtedly very great, and is probably the main reason why we yet have any fruit trees alive, and it is fortunate that winter kills so many of the scale.

### FOOD PLANTS.

"The San Jose Scale has been found on about 125 different trees, shrubs, and vines. On many of these it will hardly more than exist, and the chief danger in these

cases is that such plants may serve as places from which to pass to others, where it would be more dangerous. Nearly all fruit trees, however, are liable to destruction by this pest. On fruit it produces unsightly discolouration, reducing the selling value.

### ENEMIES OF THE SCALE.

“Several kinds of minute insects are parasitic on the scale, and a fungus lives upon it, the most effective foe is a very small black beetle, and a larger one, also black, but with two red spots on its back, these spots having given to the insect the name ‘Twice-Stabbed Lady Bug.’

### HOW THE SCALE SPREADS.

“This insect moves from place to place, only while in the crawling stage. At this time it may be caught by a gust of wind and carried from one tree to another, or it may crawl on to the feet of some bird or insect which has alighted on the infested tree, and crawl off at some later resting place, which of course may be near by or more distant. In general, however, the scale is first brought to any locality on infested nursery stock, and from this spreads to the neighbouring trees and shrubs in one or other of the ways just mentioned.

### TREATMENT.

“When a tree or plant is nearly dead, the best treatment is generally to cut it down at the roots and burn it. Possibly it could be saved by the proper treatment, but it would be several years before it would recover sufficiently to be of any value. For trees less infested many methods have been tried. These naturally fall into two classes—fumigation and spraying.

### FUMIGATION.

“This in many respects is the most satisfactory method of treatment for infested trees. The poisonous gas penetrates where no spray could reach, and when properly managed kills all the scale. Unfortunately, it is not usually a practicable method in orchards, and as a rule is limited to nursery stock. In order to fumigate successfully, gas-tight tents must be used, unless the trees are

to be dug up, the chemicals must be of a definite strength, and the fumigation must be conducted by someone familiar with the process. The cost of tents large enough to cover orchard trees is usually prohibitive.

### SPRAYING.

"After numerous experiments carried out by the Massachusetts Agricultural Experimental Station, the following spray was found to be most effective and economical.

### LIME SULPHUR WASH.

"The lime used in making the wash must be good stone lime (Magnesia lime is not desirable) which is as fresh as possible. Where the lime has air slacked to any degree, results are far less satisfactory. The sulphur should be Flowers of Sulphur or Sulphur Flour, the former being the better for the purpose.

"Place six or eight gallons of water in the kettle, start a fire under it, and slack the lime (22 lbs.) getting this as fine as possible in the slacking. When this is well under way, gradually add the sulphur (20 lbs.) stirring it in well, and keep the fire going to continue the heat begun by the slacking. Keep the mixture boiling, adding water (preferably hot) from time to time, till it has boiled at least forty minutes, and is dark orange in colour. If there seems to be a considerable amount of sediment in the bottom of the kettle, this may be taken as an indication, either that the boiling has not continued long enough or that the lime was not of very good quality. When the boiling has been completed, strain the liquid through a strainer of copper wire of at least twenty threads to the inch, and add whatever water may be needed to make up fifty gallons. Then spray at once, as in many cases where a lot of wash has been made one afternoon and sprayed the next morning, it has proved less effective, due probably to chemical changes which took place while it was standing.

"That this method of making the wash is inconvenient to say the least, is evident, and experiments which may show that we can do away with the necessity for any boiling are in progress, but the results are not yet available, though it is hoped they may prove successful.

## HOW TO SPRAY FOR THE SCALE.

"Every scale must be touched by the spray to be killed, but a very small droplet on each will suffice. To spray successfully then, *spray thoroughly*.

"If the trees can be well pruned before spraying, much extra time and trouble will be saved, as the most difficult parts of a tree to cover well are the small twigs. In spraying it is well to begin at the top and work downwards, rapidly following each branch towards the trunk with the nozzles, and if there is a wind, work on that half of the tree that is to windward. If there is little or no wind, the tree can be treated from all sides before it is left, but with much wind blowing it may be better to spray all the trees from one side only, treating the other side as soon afterwards as the weather will permit. It must be remembered, however, that the object is to cover every particle of the surface *everywhere* with the spray. As the wash shows plainly when it dries this can often be taken advantage of to 'touch up' later any spots which were missed at first. In spraying, pump so as to put on as much pressure as possible, and hold the nozzles as near the branches as can be done, to drive the mist into all the tiny crevices in the bark, under which the scales appear to like to conceal themselves.

"Treatment as thus directed will usually result in the larger limbs and trunk being more or less soaked by surplus spray which runs down from above, but this should do no harm, and in fact is likely to be advantageous.

## WHEN TO SPRAY.

"It is generally considered unsafe to spray for the San Jose Scale while the leaves are on the trees, the materials used are so strong; though in certain cases trees have been sprayed when in full leaf with the lime sulphur wash without injury. Treatment in summer is not advisable, however, and the best and safest time to apply the wash is from the time the leaves have fallen till the buds begin to open in spring. In case trees are found during the summer which are so badly infested that it seems probable they will die before winter, a mild treatment to hold the scale in check is needed. It is not safe to use the treatments already discussed at this time of year, and the

best material under the circumstances is one of the whale oil soaps at the strength of one pound of soap to five gallons of water.

"This will destroy all the crawling young it reaches, and thus prevent a rapid increase in numbers of the scale, as would otherwise be the case. The treatment may need to be repeated several times, however, as the old scales are not affected, and more young will be constantly appearing. Spraying at this time is particularly unsatisfactory too, as the leaves render it difficult to cover the twigs and branches as thoroughly as is desirable."

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## **The South African Products Exhibition, 1907.**

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### **REPORTS OF JUDGES ON RHODESIAN EXHIBITS.**

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#### **TOBACCO.**

The judges comment on all the South African tobacco as follows:—

"Throughout the whole of the exhibits little or no regard has been paid to either the grading, packing or handling of the various classes of leaf. This is a most important factor in producing tobacco, and unless these details are properly attended to, it will be useless to try and place your tobacco on the English market.

"In the case of American leaf, special attention should be paid to the length, as nearly the whole of the exhibits in this class were far too short.

"The longer the leaf the greater the value, for a short one is almost unsaleable owing to loss in stalks, and tobacco being small for cutting purposes. Special care should be taken (especially in Turkish tobacco) in the fermenting and maturing. This has great effect upon the condition of tobacco for storing, without which the leaf will perish and become too dry and brittle.

"It is imperative you should supply the market with the class of goods it demands, for it cannot be expected manufacturers are to be persuaded to take what you feel disposed to send over.

"Taking the whole of the exhibits displayed, notwithstanding the many imperfections, I have no hesitation in saying that the tobacco of the British South Africa Company is far and away the best of those submitted."

The judge's comments on individual exhibits sent from Rhodesia are not in all cases laudatory, the defects seem to be more in the preparing and handling of the leaf than in the quality of the tobacco itself; these defects can and will be easily remedied when growers realise the value of careful grading and packing, and obtain more experience generally in the preparation of their crop for sale.

The following are some of the criticisms passed:—

*"Rhodesian-grown Virginia Tobacco.*—This sample was badly graded, not properly matured, possibly good tobacco spoilt in the handling.

*"Virginia Show Leaf.*—This specimen was of good substance, clean and well grown.

*"Virginia Tobacco (folded and hanked).*—This tobacco was terribly spotted, lacking in substance, by far too short for commercial purposes, yet of fairly good quality. Other three specimens shown were all fairly representative, but badly graded and carelessly packed.

*"Bale of Turkish Cigarette Tobacco.*—This was very passable, carefully handled and packed; the most carefully handled and packed of the whole exhibits.

*"Turkish Tobacco.*—This was badly graded regarding size and colour, sweet, aromatic, and has the nucleus of a fine tobacco when properly handled, matured, etc.

*"Cigarettes of Rhodesian-grown Tobacco.*—Very fair quality, but lacking in sweetness and aroma—requires blending with some other tobacco to tone down.

*"Virginia Cigarettes.*—A good rich tobacco, very clean on the palate, good aroma, and well matured."

These few examples will show in what respects the tobaccos from this country come short of the standard required for the Home market.

A firm of cigar merchants who were asked to judge the manufactured tobacco say that "the sample of cigars from Rhodesia had unfortunately been so roughly handled as to render the task of judging its merits a difficult one. It appears to have the characteristics of really good tobacco, and if carefully grown, properly cured, and fermented, should prove a saleable article in this market."

The same firm then proceeds to give the following salutary advice:—

“I would strongly recommend the South African farmers to give the matter of tobacco culture (which includes all the other processes of curing and packing) a vast deal more care and attention in the future than they have done in the past. Judging from all the samples shown, the whole business is conducted in a most slipshod haphazard fashion, whereas with care they should rival Sumatra, a Dutch colony, where tobacco was grown for the first time only thirty years ago, and where some of the plantations pay annually 300 per cent. to 400 per cent. on their capital outlay. They have proved more profitable than most gold mines, and prices for good tobacco are ruling higher than ever this year.

“For the purpose of cigar making there are three distinct classes of tobacco required, viz.: (1) Filler or the broken leaves used in the interior of the cigar. (2) Binder or coarse leaf used to hold filler roughly in shape in preparation for (3) the cover or wrapper which is the only part seen by the purchaser.

“The filler should be a tobacco of about six to ten inches in length, not necessarily very sound or unbroken, containing not more than 16 per cent. of stalk, and must be of good quality. For this grade Havana tobacco is unrivalled, and fetches from 1s. 6d. to 3s. per lb., exclusive of duty.

“The binder or bunch wrapper most used is a seed tobacco grown in the United States, or a somewhat similar tobacco grown in Germany. These are rough, but sound tobaccos, mostly of excellent burning, and except the German, of a neutral flavour. These tobaccos are usually sold without stalk (*i.e.*, stemmed) and realise from 1s. 3d. to 1s. 9d. per lb.

“The cover leaf must be of a clean and silky texture, of a clear greyish or light brown colour, not marbled or double coloured. It must burn evenly and white, hold the fire and ash, and the flavour must be good or neutral. The covers most in vogue, and which largely fill above requirements are Sumatra, Borneo and Java, all East Indian tobaccos, but necessarily varying considerably in quality and price. A good cover will fetch about 1s. 6d. per lb.

"It should be borne in mind that the tobaccos required for cigars, cigarette making, or pipe purposes, are all of them absolutely distinct.

"The atmospheric conditions, the soil, cultivation or treatment, are for each class quite different, and require the services of special experts to advise and superintend. Such experts can only be obtained by payment of high salaries, but the expense could be divided between a district or colony, and services charged pro rata.

"At any rate if tobacco is to be grown successfully, the rough and tumble methods of two hundred years ago must be abandoned, and the up-to-date and scientific cultivation of successful competitors, be copied.

"I feel confident that any care spent on cultivation will be more than repaid, and that should South Africa succeed (and there is every reason to believe that she can do so) in producing tobaccos to fill any of the above requirements, I am convinced that manufacturers here will gladly welcome such, and give their fellow countrymen a full share of the profit of this cultivation, which is now all practically entirely absorbed by the foreigner."

## CEREALS.

The judge's report on Cereals is as follows:—

"Having been requested to make a general report, as to my impressions regarding the cereals exhibited at the South African Products Exhibition, I will at once admit that I was considerably surprised at the general high standard of quality of most of the samples exhibited; the wheat and mealies, peas and beans as a rule being a very high standard, well developed, well harvested, and very free from extraneous seeds and dirt, and all more or less suitable for the European markets.

"Of course, there were different varieties; for instance, the ninety-day mealies, the six-rowed barley and Boer oats would not pay so well to export as the other articles, being too inferior in quality, and would only find buyers at comparatively low prices, but they all have a relative value on the London market.

"There were some samples of very small millet which would be difficult of sale in any quantity.

"With these exceptions I think I may fairly say that all the exhibits are suitable for the London market, and would meet a fair enquiry.

"Mealies, both yellow and white, are all suitable for the London markets, except ninety-day mealies, which would only sell at a reduced price, and the yellow sorts would always go more freely into consumption than the white.

"The Ideal barley would not be appreciated, but the winter barley would meet a ready sale all the year round, and more especially from October to March for malting purposes.

"Sunflower seed is not a large trade, and shipments of large quantities would swamp the market, but for moderate quantities good prices can be obtained.

"Wheat, Wol-Korn, fine sample of soft white wheat, more suitable for the North of England.

"Peas: Chishawasha Mission very fine quality, ought to be placed on our markets between October and February.

"Oats: Very similar quality to what is grown in the Argentine, and would compete with them; present value, 16s. to 17s. per 320 lbs.

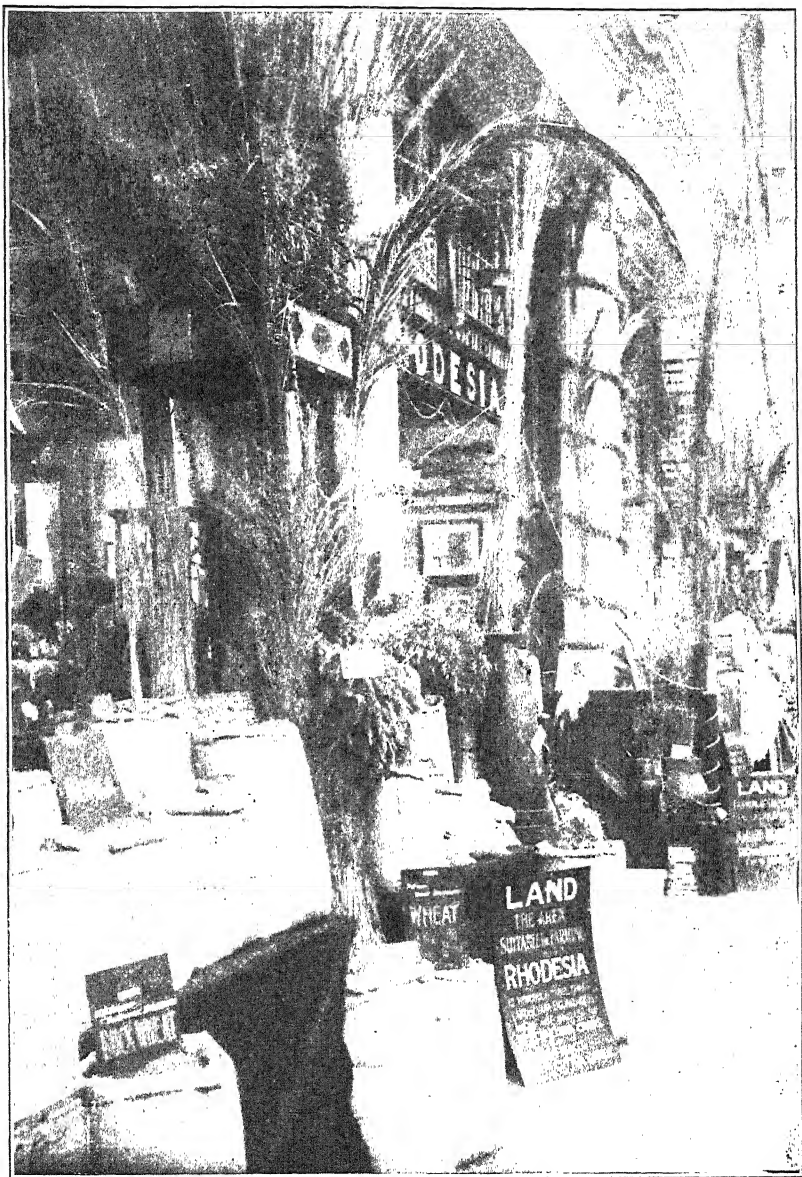
"Buck Wheat: Exceptionally fine sample.

"Haricot Beans: Very fine sample, would go for human food best; enquiry not large; prices fluctuate considerably; yellow difficult to sell.

"White Kafir Corn: A fair enquiry; present value, 22s. to 23s. per 480 lbs.; red not so saleable, and worth 2s. to 3s. less."

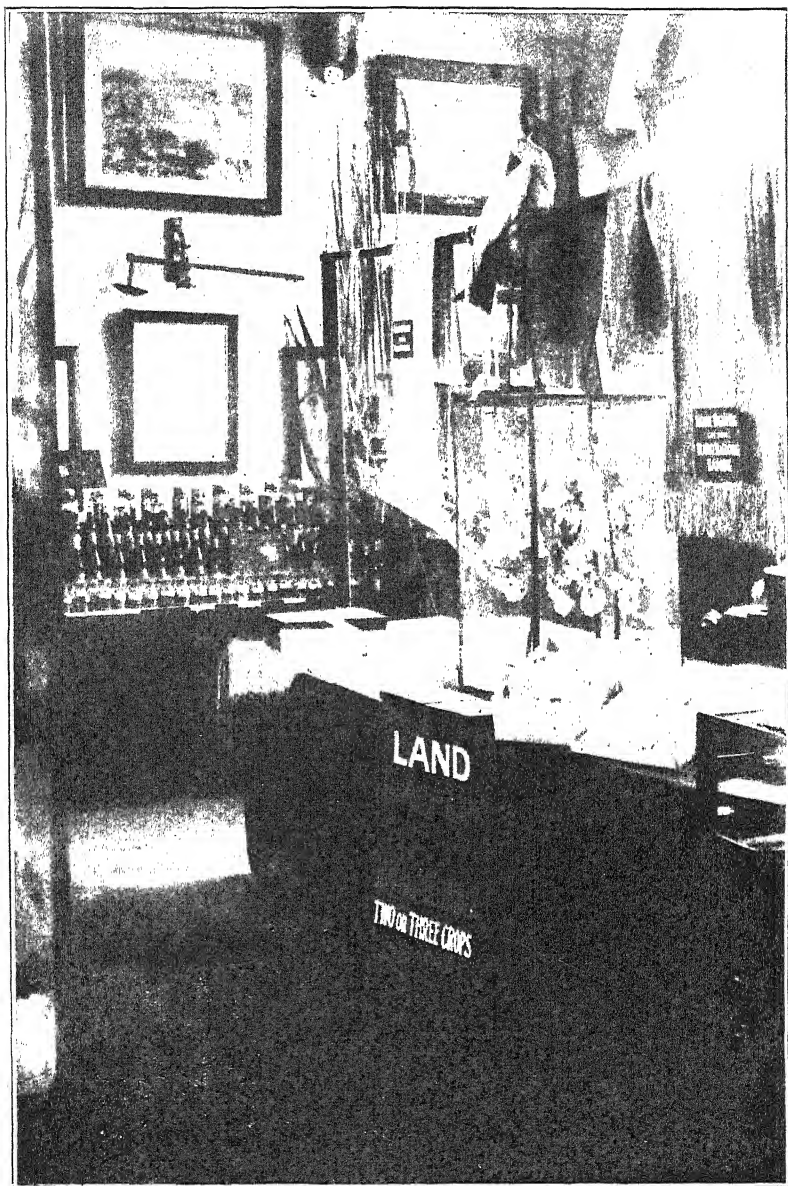
Another report on grain crops produced in South Africa is as follows:—

"The general impression from the exhibits on show is that South Africa is able to produce high grade qualities, and will before long take an important place among the producing countries of the world, provided that the cost of transport to sea-board can be kept within reasonable limits. In preparing for export, pains should be taken to ensure careful cleaning and bulking, as trade is greatly assisted by samples which run even and can be relied upon. In some cases certain varieties may have to be grown for certain markets, but this should present no diffi-



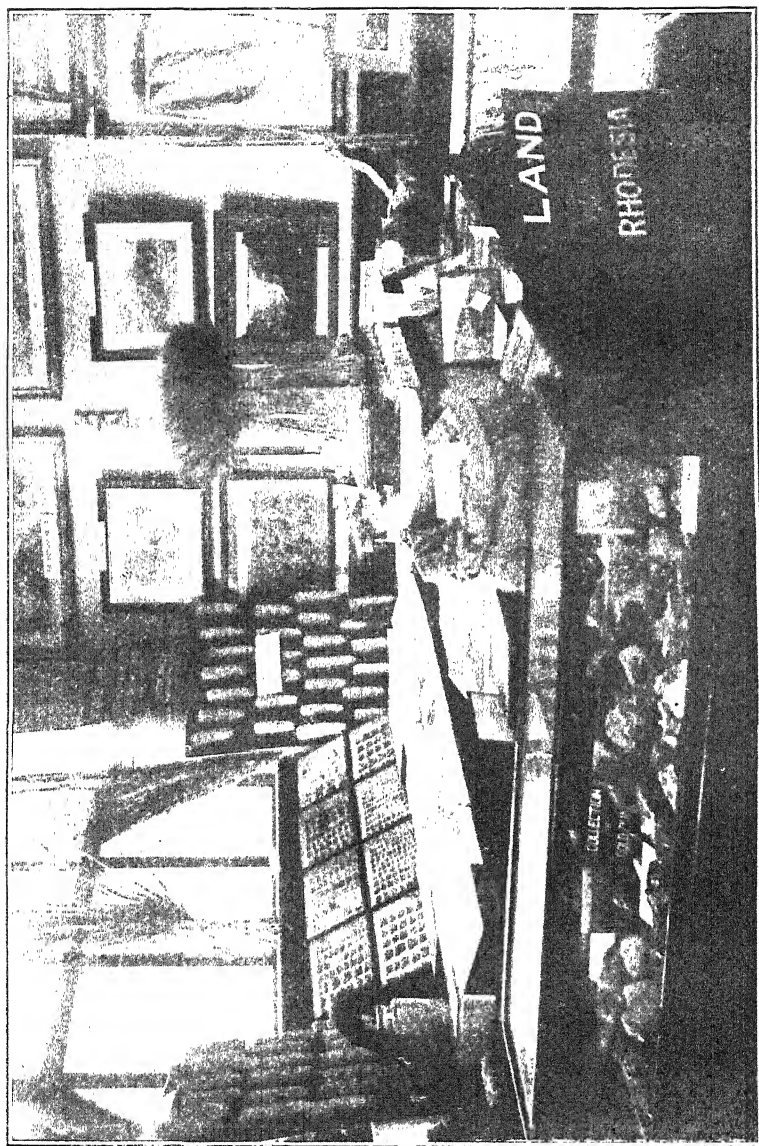
Cereal Exhibits—South African Products Exhibition.





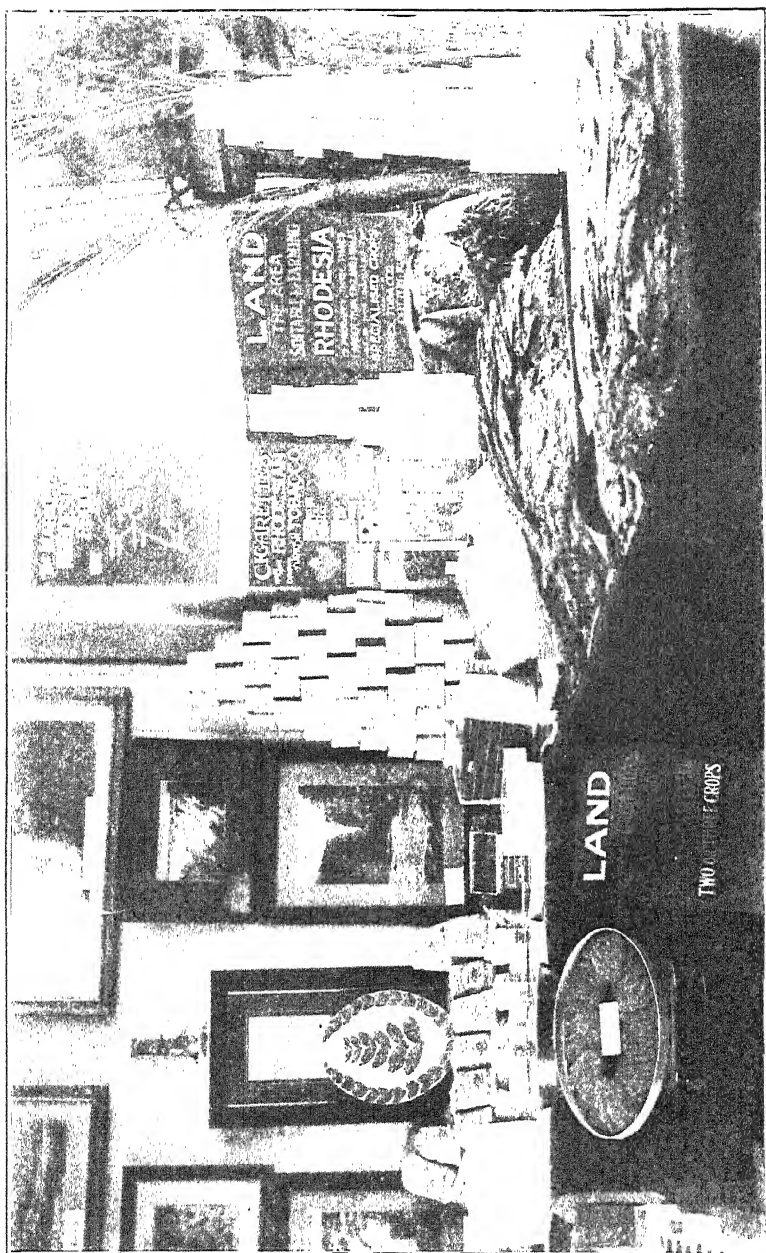
Cotton—South African Products Exhibition.





Cereal Exhibits The South African Products Exhibition.





Tobacco Exhibits at the South African Products Exhibition.



culty; in fact, interchange of seed has proved so beneficial that on general grounds it deserves strong recommendation.

"The buck wheat is bolder in corn than any European or Canadian, and would meet with a ready sale.

"The sorghums and millets on show are different varieties from those which are marketed in England, but I see no reason why South Africa should not grow the varieties which are in demand.

"The daris and sunflowers are all good and suitable for the English market.

"The beans and lentils are also of good quality, although some of the varieties are foreign to our market."

### WOOL.

Rhodesian wool obtains the following favourable report:—

"The few samples exhibited are of interest as showing what can be done in this new Colony. The wool is quite equal in quality to the average of the older colonies, it is equally soft, and possesses the same excellent spinning properties. It is deficient in length, but is quite sound. It contains a large amount of dust and veld, but it is not too heavy in grease.

"We presume that for a first experiment the owners would not be over anxious to sink money upon a high class of sheep. The fact that such satisfactory results have been obtained from what we imagine were ordinary flock animals is distinctly encouraging, and would justify an outlay upon a better class of sheep selected with a view to producing wool which could take its place amongst the best of the other colonies.

"A pure-bred Merino, densely woolled so as to resist the penetration of dust, long stapled and not too fine in the hair, is the class we would recommend.

"The tendency in South Africa is for the wool to get finer and shorter. If year by year rams were selected which most resisted this tendency, and the flocks periodically re-invigorated by the importation of robust blood, we think the sheep tracts of Rhodesia should eventually produce as good results as any other part in the world in the same latitude."

## HAY.

The following is the judges' verdict on the hay exhibited:—

"The veldt hay exhibited by Rhodesia is, in our opinion, of a superior type, and is no doubt excellent food for both cattle and horses. If a reasonable freight could be arranged to permit of exportation, there is no doubt a market could be found in England for this class of hay, but the hay would have to compete with similar hays from Algiers and Holland, the prices of which generally rule comparatively low on the London market:

"The oat-hay, both chaffed and long, is all of excellent quality and of uniform merit."

## NUTS.

Rhodesian ground nuts are evidently of quite superior quality, as the following report will show:—

"*Ground Nuts* (native grown).—These nuts are of a far higher grade than those shown by the Transvaal, and are very satisfactory in size, but deficient in colour. A bright clean nut always commands a much higher price than a darkish nut, irrespective of their contents. The price that would probably be paid for these nuts on this market would be 16s. to 18s. per cwt.

"*Ground Nut Kernels* exhibited by Rhodesia Consolidated.—A particularly fine specimen, and to be highly commended. These kernels should command between 22s. to 25s. per cwt. freely on this market.

"*Ground Nuts* exhibited by the Chishawasha Mission.—While not being of such a high grade as those shown as native grown, are to be commended for their colour, and are very similar in appearance to Rufisque nuts now worth 15s. to 16s. per cwt. on this market."

## TIMBER.

The judge of native woods says:—

"After minutely examining the various specimens, we think they would be more suitable for building purposes than for furniture."

## GRANITES, ETC.

Granites, etc., get the following notice:—

“Rhodesia exhibits several very interesting granites, one of purple tint being very fine. The agates are fairly good; also a fine specimen of Malachite is shown, this being a sedimentary deposit the markings are horizontal only (not contorted), but it will polish.”

## RHODESIAN SECTION.—AWARDS.

	Gold.	Silver.	Bronze.	Diplomas.
<b>Cereals.</b>				
Black & Kirkman, Salisbury:				
Salisbury White Mealies ...	...	...	I	
Chishawasha Mission:				
Barley, Brazilian Bread Mealies,				
Dwarf Marrow Peas, Ground				
Nuts, Italian Wheat, Native				
Beans, Rapoko... ..	...	I		
W. B. Colling, Salisbury:				
Buckwheat, Peas ... ..	...	I		
L. Cripps, Umtali:				
White Beans ... ..	...	...	I	
R. le S. Fischer, Headlands:				
Barley, Oat Forage, Wheat ...	...	...	I	
E. A. Hull, Rhodes Farm, Westacre:				
Wheat ... ..	...	I		
Old Umtali Mission:				
Mealie Meal ... ..	...	...	...	I
G. A. Peacock, Learig, Salisbury:				
Wheat ... ..	...	...	...	I
Premier Estate, Umtali:				
Oat Hay, Wheat ... ..	...	...	I	
P. Reimer, "Stuhm," Salisbury:				
Barley, Oats, Wheat ... ..	...	...	I	
Rhodesia Consolidated, Ltd., Graves-				
end Farm:				
Barley in Sheaf ... ..	...	...	...	I
T. A. Rixon, "Fort Usher":				
Haricot White Beans, Speckled				
Beans ... ..	...	...	...	I
P. C. Rutherford, Umtali:				
Mealie Meal ... ..	...	...	I	
C. Southey, Mazoe:				
Boone County Mealies ... ..	...	I		

RHODESIAN SECTION.—AWARDS (*Continued*).

	Gold.	Silver.	Bronze.	Diplomas.
<b>Cereals—(continued).</b>				
A. Strickland, Umtali :				
Barley, Boer Meal (sifted), Rapoko Meal (machine ground), Boer Meal (unsifted), Buckwheat, White Beans, Mealie Meal, White Mealies, Yellow Mealies, Wheat Oats ... ..	...	I		
J. Watson, Salisbury :				
Salisbury White Mealies ... ..	...	...	I	
C. Weissenborn, Umtali :				
Boer Meal (sifted), Boer Meal (unsifted), Mealie Meal ... ..	...	...	I	
<b>Tobacco.</b>				
B.S.A. Tobacco Plantations, Salisbury:				
Bright Tobacco Leaf, Cigarettes, Virginia Leaf ... ..	...	I		
Barker Bros., "Ungusa," Bulawayo :				
Turkish Leaf (in rounds), Barker's 1905 Crop, Assorted Turkish Cigarettes, Cut Turkish Cigarette Tobacco, Turkish Leaf Tobacco, Turkish Tobacco Leaf ... ..	I			
Barratt Bros., Que Que :				
Tobacco Leaf ... ..	...	...	I	
L. Black, "Stapleford," Salisbury :				
"Stapleford" Cigarettes (Turkish), Turkish Tobacco Leaf, "Stapleford" Cut Tobacco ... ..	...	...	I	
S. Biggs, Mazoe :				
Turkish Leaf ... ..	...	...	I	
E. A. Copeman, N.W. Rhodesia :				
Native Tobacco for snuff ... ..	...	...	...	I
W. M. Cumming, Salisbury :				
Tobacco Leaf (in tins) ... ..	...	...	I	
Messrs. Gilfillan, Orton's Drift :				
"Palgrave" Tobacco (in bags) ... ..	...	...	...	I
H. Harrison, Umtali :				
Dark Leaf ... ..	...	...	...	I
Koefman, Salisbury :				
Cigars ... ..	...	...	...	I

RHODESIAN SECTION.—AWARDS (*Continued*).

	Gold.	Silver.	Bronze.	Diplomas.
<b>Tobacco—(continued).</b>				
North-Eastern Rhodesia :				
Pipe Tobacco in bags (samples),				
Tobacco Leaves grown at				
Minongo (samples) ... ..	...	...	...	I
Rayner's Turkish Leaf :				
1st Grade, 2nd Grade, 3rd Grade	...	I		
Salisbury Tobacco Company :				
"Q.E.D." Tobacco (packed in				
tins) ... ..	...	...	I	
Sketchley & Townsend :				
Manufactured Tobacco ... ..	...	...	I	
<b>Produce (Miscellaneous).</b>				
Salisbury Brewery, Ltd. :				
Bottles of Beer and Stout ...	...	...	I	
Chishawasha Mission, Salisbury :				
Honey, Coffee ... ..	...	...	I	
Mrs. Eickhoff, Umtali :				
Preserved Fruits ... ..	...	...	I	
Government Garden, Fort Jameson,				
North-Eastern Rhodesia :				
Coffee ... ..	...	...	I	
Colonel Napier, "Springs," Bulawayo:				
Grass Hay... ..	I			
North-Eastern Rhodesia :				
Chillies ... ..	...	...	...	I
James Wheeler, Enkeldoorn :				
Ostrich Feathers ... ..	...	...	I	
J. Ballantyne, Jersey Farm, Melsetter :				
10 lbs. Native Rubber ... ..	...	...	I	
A. S. Gifford, Wolverhampton, Mel-				
setter :				
10 lbs. Coffee Berries ... ..	...	...	...	I
T. E. Brent, Uitkyk Farm, Melsetter :				
10 lbs. Upland Rice ... ..	...	...	...	I
Theunis Steyn, Ruwaka Farm :				
1 lb. Wheat (Wol Corn) ... ..	...	...	I	
J. G. F. Steyn, Johannes Rest, Mel-				
setter :				
1 lb. Wheat ... ..	...	...	...	I
Ladies of American Mission, Mt.				
Silinda, Melsetter :				
6 jars Landolphia Jelly ... ..	...	...	I	
F. L. Kean, Salisbury :				
35 lbs. Cakes (from Rhodesian				
produce) ... ..	...	I		

RHODESIAN SECTION.—AWARDS (*Continued*).

	Gold.	Silver.	Bronze.	Diplomas.
<b>Cotton.</b>				
C. E. F. Allen, Experimental Gardens, Victoria Falls :				
Small specimens of the Cotton				
Tree bearing Lint ... ..	...	I		
North-Eastern Rhodesia :				
Samples grown from Egyptian and American Seed ... ..	...	I		
Rhodesia Consolidated, Ltd., Graves- end Farm :				
Cotton ... ..	...	...	I	
<b>Wool.</b>				
Cronwright, Melsetter :				
Merino Wool, Washed Merino Wool ... ..	...	...	I	
Rhodes' Trustees, Inyanga Farm :				
Merino Wool ... ..	...	I		
<b>Vegetable Oil Products.</b>				
Chishawasha Mission :				
Ground Nut Oil, Ground Nuts ...	...	...	I	
Rhodesia Consolidated, Ltd., Graves- end Farm :				
Castor Oil Beans, Ground Nuts...	...	...	I	
Rhodesia Cotton Syndicate :				
Castor Oil Beans ... ..	...	...	I	

**Epitome of Cattle Inspectors' Returns.**

FOR THE MONTH OF SEPTEMBER, 1907.

SALISBURY.

*Mange.*

Two horses and one donkey under licence.

*Scab.*

Two flocks under licence.

BULAWAYO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: Eighteen deaths have occurred within the fenced area. During the month Bennett's infected herd had to be maintained on partially infected veld, as grass on the clean pasture had been burnt off by grass fires. The testing of the cattle outside the infected zone is proceeding satisfactorily without the detection of the disease.

*Rabies.*

One case, European bitten. and two dogs destroyed.

*Glanders.*

The following animals were tested with Mallein, and found healthy:—Horses, 20; mules, 50; donkeys, 32; total, 102.

GWELO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No further cases of Coast Fever have occurred within the Selukwe Quarantine Area.

*Rabies.*

One suspected case of rabies. A European was bitten.

UMTALI.

*Scab.*

Three outbreaks occurred. Seventeen flocks are under licence.

*Mange.*

One donkey died from this disease.

VICTORIA.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No definite case of African Coast Fever has occurred since 29th June, 1907.

MELSETTER.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: The position remains satisfactory.

MANGWE.

*Scab.*

Three flocks are under licence.

E. M. JARVIS,

Acting Chief Veterinary Surgeon.

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FOR THE MONTH OF OCTOBER, 1907.

SALISBURY.

*Specific Calf Disease.*

*White Scour?*

This disease has broken out at a dairy free from the disease since 1901. Of 20 calves affected, 3 died. Most of the sick calves suffered at the same time from Redwater.

*Scab.*

Four flocks under licence.

BULAWAYO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: One death occurred about the beginning of the month. The testing of herds still continues. Three suspicious cases were observed

amongst Mrs. Coker's cattle, but these proved healthy. The position, on the whole, may be regarded as satisfactory.

*Glanders.*

The following animals were tested with Mallein and found healthy: Horses, 56; mules, 46; donkeys, 53; total, 155.

UMTALI.

*Scab.*

One flock placed in quarantine, making 17 flocks under licence.

GWELO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreak: No death or suspicion of disease within the area.

VICTORIA.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths have occurred during the month. The cattle have again been moved on to clean ground.

*Rabies.*

A Native child was bitten by a rabid dog.

MELSETTER.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

HARTLEY.

*Rabies.*

A mule was destroyed as suffering from Rabies. A Native was bitten.

J. M. SINCLAIR,

Chief Veterinary Surgeon.

## **SOUTH AFRICAN STUD BOOK.**

A RECORD of all classes of Stock, the object being to encourage the breeding of Thoroughbred Stock and to maintain the purity of breeds, thus enhancing their value to the individual owner and to the country generally.

Applications for Membership and entries of Stock should be addressed :

For Cape Colony to—

J. PIKE, P.O. Box 703, CAPE TOWN.

For Transvaal to—

F. T. NICHOLSON, P.O. Box 134, PRETORIA.

For Orange River Colony—

E. J. MACMILLAN, GOVERNMENT BUILDINGS,  
BLOEMFONTEIN.

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J. PIKE,  
Secretary South African  
Stud Book Association.

## Government Notices.

No. 42 of 1907.

Department of Agriculture.

Administrator's Office.

Salisbury, 28th February, 1907.

### RABIES.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904," may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcases of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

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No. 91 of 1907.

#### "GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds:—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glareola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

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No. 237 of 1906.

#### GAME LAW CONSOLIDATION ORDINANCE, 1906: CLOSE SEASON, &c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof:—

#### CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.

2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.

3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned :—

- (a) Oribi, within the magisterial district of Charter.
- (b) Grysbok, within the magisterial district of Bulawayo.
- (c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.
- (d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melssetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C," except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary :—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows :—

On the North and West by the River Zambesi, starting at the point where the Loenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanvati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaodsa Rivers to the headwaters of the Loenzi River and thence along the course of the Loenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaodsa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

#### SCHEDULE

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umzwazwe Bridge, thence along the Umzwazwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 188 of 1906.

26th July, 1906.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.

2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions:

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.
- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (c) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
- (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.
- (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.

5. The movement of working cattle may be permitted under the following conditions only:—

- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it

conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.

- (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided:—

- (a) That such movement shall be to nearest available pasturage by the most suitable route.  
 (b) That written consent be obtained in terms of Section 4 (b) hereof.  
 (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.

7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.

8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.

9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.

10. All wild-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days: provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank:—

For cattle (over six months)	..	..	..	3d. per head.
For horses and mules	..	..	..	3d. ..
For calves (six months and under)	..	..	..	2d. ..
For small stock	..	..	..	3d. ..

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umvutcha, Reigate, Upper Nondweni, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umvutcha.

No. 216 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 10th October, 1907.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw Sub-section (b), Section 5 of Government Notice No. 188 of 1906, and declare the following to be of full force and effect in lieu thereof:—

Within the said area from private farms and trading stations to any centre of consumption, or to a railway station or siding, or to and from any other farm, or from a mine to a railway station or siding for the purpose of transporting fuel or mining timber, under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed; provided that no permit shall be issued until the person applying for the same shall produce the written consent of the owners, occupiers, or managers of occupied lands proposed to be traversed, and, in the case of native reserves, of the Native Commissioners, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner, and to the satisfaction of the officer issuing the permit; provided further that, in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 217 of 1907.

Department of Agriculture.

Administrator's Office.

Salisbury, 10th October, 1907.

AFRICAN COAST FEVER.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw as from the 1st October, 1907, the regulations promulgated by Government Notices No. 189 of 1906 and No. 185 of 1907, and declare that the following shall be of full force and effect in lieu thereof from that date within the province of Mashonaland and the fiscal division of Gwelo, as defined by the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which areas are hereby declared to be areas infected with a destructive disease:—

1. The movement of all cattle within the said area is prohibited save and except:—

- (a) On permission granted by an officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within any area of land enclosed by a substantial fence.
- (d) Within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp.
- (e) Within a radius of four miles of any native kraal situate within the boundaries of any native location or reserve, the site of such kraal shall be deemed to be the place where it is situated at the date of publication hereof, and as is further provided.

2. The movement of cattle for slaughter purposes shall be permitted under the written authority of an officer thereto duly authorised, subject to the following terms and conditions:—

- (a) That such cattle are moved by the most suitable route to the centre of consumption. All cattle travelling by road to be under the personal supervision of a responsible white man, or native approved of by the Cattle Inspector.
- (b) That before cattle may enter from a native district not included in any particular group of districts as defined in Section 6 (b) the written permission of owners, occupiers, or managers of all occupied land, and, in the case of native reserves, of the Native Commissioner of the district over which such cattle shall pass to the nearest station, siding, or centre of consumption is obtained; provided that in the event of such owners, occupiers, managers, or Native Commissioners refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall, on arrival at the centre of consumption, subject to the terms of clause (d) hereof, be immediately taken to the prescribed quarantine area, and there be quarantined and confined, and branded with the letters "V.D." on the near side of the neck under the supervision of a duly authorised officer.
- (d) That all cattle brought into any centre of consumption shall be disinfected by dipping or spraying at the public dipping station before being taken to the quarantine area.
- (e) That all cattle admitted to the quarantine area shall be slaughtered within 21 days of their admission, and only be permitted to leave the area for the purpose of being driven to the abattoir for slaughter. All such cattle shall, after admission to the said area, be considered as likely to be infected with disease, and, if found wandering outside the said area or in possession of any person, may be destroyed under an order of the Chief Inspector or Controller of Stock.

- (f) That intermediate depots, or concentration camps, for slaughter stock may be allowed at centres approved of by the Chief Inspector of Cattle, provided that no such camp shall be situated within less than a radius of five miles of any commonage, town lands, or grazing ground common to any mining camp, railway station or siding.

3. The movement of cattle required for *bona fide* mining, farming, breeding and dairying purposes and for private milk supplies may be permitted on the written authority of a duly authorised officer, subject to the following terms and conditions:—

- (a) That such movement shall take place subject to the conditions set forth in Section 2 (a) and (b).
- (b) That whenever such cattle shall at any place along the route have passed within a radius of less than five miles of an infected area, the cattle shall upon arrival at their destination be effectually isolated from all other cattle on the same land for a period of four weeks.
- (c) That whenever the cattle being removed shall at any portion of the route have passed within native districts where infected areas exist, the consent in writing to such movement be obtained from all owners of cattle on farms adjoining that to which movement takes place; and in the case of native reserves of the Native Commissioners of the districts; provided that should such consent be unreasonably withheld by any of the aforesaid persons the Controller of Stock may direct the issue of a permit.
- (d) That such cattle required for breeding and dairying purposes, or for private milk supplies, when moved to within the boundaries of the various commonages, town lands, or of grazing ground common to any mining camp or other centre where cases of African Coast Fever have occurred within 15 months, shall be confined in some enclosed place approved of by the local Cattle Inspector, and, if a case of African Coast Fever occur in such enclosure, shall not be liberated therefrom except in terms of Section 5 herof, until 15 months after the last occurrence of African Coast Fever within the enclosure in which they are kept, nor shall they be allowed, after liberation, to run upon any of the land specified herein, unless such land has been free from African Coast Fever for a period of 15 months.
- (e) All cattle introduced in terms of the preceding sub-section (d) shall, on arrival, be taken direct to the Government dipping station and there be dipped or sprayed.
- (f) All cattle confined in terms of clause (d), and all calves born within the said enclosures, shall be sprayed every 14 days, as may be directed by the Cattle Inspector.
- (g) No cattle shall be moved from one native district to another unless with the permission of the local Veterinary Officer and the Cattle Inspectors of the districts to and from which such movement takes place.

4. All calves having less than two permanent teeth running within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp or other centres where cases of African Coast Fever have occurred within 15 months of the date of these Regulations, or born thereon after such date, shall be removed to some enclosed place approved of by the local Cattle Inspector, and shall not be liberated or allowed to run at large on such commonage, town lands or common grazing ground until 15 months after the occurrence of the last case of African Coast Fever within the enclosure in which they are confined, or upon such commonage, town lands or common grazing ground.

- (a) No calves shall be permitted to accompany working cattle travelling along the roads mentioned in Section 7, sub-section (c), and all calves born of such working cattle whilst travelling shall not be removed from the place where born.

5. For the purpose of cleansing an area of disease the Controller of Stock may, under the authority of the Administrator and on the advice of the Chief Inspector of Cattle, subject to such conditions as may be stipulated, permit the removal of calves and other cattle to an adjacent clean area.

6. The movement of working cattle other than those specified in Section 7 hereof may be permitted within the following areas and on the terms and conditions hereinafter set forth :—

(a) Within a maximum radius of 15 miles of any working mine, or mine in course of development, for the purposes of such mine, provided that :—

- (1) Such cattle shall only be moved under permission of a duly authorised Officer, and shall be dipped every 14 days where a dipping tank is available within such area, or, in the absence of a dipping tank, be thoroughly sprayed with an insecticide.
- (2) Such permission shall not be granted where it conflicts with any other section of these regulations, or if such movement is considered to be dangerous to other cattle within the 15 mile radius.

(b) Within the boundaries of the Gwelo and Lomagundi Native Districts, and within and between the boundaries of the following adjoining Native Districts : (1) Salisbury, North and South Mazoe ; (2) Hartley, Charter and Chilimanzi ; (3) M'tokos, M'rawas, Marandellas and Makoni ; (4) Inyanga, Makoni and Umtali (as defined by Government Notice No. 13 of 1899) ; (5) Along the road West of the Sabi River from Olzi Bridge to Makondo Copper Mine, subject to the following conditions :

- (1) That the movement will be permitted for such period as the Controller of Stock may in his discretion, and on the advice of the Chief Inspector of Cattle, deem expedient, provided that such permission may at any time be withheld or withdrawn without notice.
- (2) That all applications for removal shall be approved of by the Cattle Inspectors of the districts through which the cattle pass.
- (3) Provided that in the event of such Cattle Inspectors refusing to grant permits for the removal of cattle, the Chief Inspector may, on the advice of the local Veterinary Officer, direct the issue, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (4) That all such cattle are dipped every 14 days where a tank is available, or, in the absence of a tank, are thoroughly disinfected by spraying.

7. The movement of " salted " or immune working cattle shall be permitted on the following terms and conditions :—

- (a) That such cattle have been registered and branded under the supervision of the Cattle Inspector with the brand " T.O. " on near shoulder and the registration number on near horn, in terms of Section 7, clauses (a) and (b) of Government Notice No. 109 of 1905.
- (i) That the movement of such cattle shall only take place under the written permit of a duly authorised officer and subject to the conditions that they are disinfected by dipping every 14 days, where a dipping tank is available, or, in the absence of a dipping tank, by thorough spraying with an insecticide.
- (c) That movement of such cattle only shall be permitted :—
  - (1) Along the main roads of the Melssetter District.
  - (2) From Umtali to the Makondo Copper Fields.
  - (3) From Melssetter to Umtali.

8. In the event of failure of pasturage or water on land on which cattle are located the movement of such cattle will be permitted, provided :

- (a) That such movement shall be to the nearest available pasturage by the most suitable route.
- (b) That written consent be obtained in terms of Section 2, clause (b) hereof.
- (c) That such movement shall be by permit only of a duly authorised officer and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector of the district.

9. All applications for the removal of cattle under Sections 2, 3 and 8 hereof shall be submitted to, and approved of by, the local Veterinary Officer before being granted.

10. All permits granted under the provisions of these Regulations shall specify the number and brands of cattle, route to be travelled and period allowed, and may define places of outspan, and all other conditions endorsed on such permits by the officer issuing the same shall be strictly observed.

11. All veldt-fed animals within the limits of the various commonages or town lands, or other centre where there is common grazing ground within the districts of Umtali and Melsetter and the scheduled area at Selukwe, upon which public dipping tanks have been established, shall be dipped therein at least once every 14 days; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

12. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these regulations in respect of any dipping done at a public dipping tank:—

For Horned Cattle (six months old and over)	..	3d. per head.
For Horses and Mules	..	3d. "
For Calves (under six months) and Donkeys	..	2d. "
For Small Stock	..	1d. "

with a minimum charge of 6d. for any number of animals not aggregating such fee under the above tariff.

13. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed: provided that the Inspector may at his discretion carry out such disinfection with the assistance of and at the entire cost of the owner of the animals sprayed, the cost of such disinfecting being payable at the time of spraying.

14. Whenever the owner, occupier, or manager of a farm shall adopt means for cleansing his cattle running thereon, either by spraying or dipping or any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the same farm to cleanse such cattle or any others before permitting them to enter or pass over such an area, and the Native Commissioner of the district in which such farm is situated may enter into an arrangement with the native owners of cattle, to cleanse such cattle at a charge to be mutually agreed upon between the said owner, occupier or manager and the said native owners.

15. Any person contravening the provisions of these regulations shall be liable to the punishments prescribed by the Ordinance, and in cases where no special punishment is prescribed by the said Ordinance to a fine not exceeding £20, or to a period not exceeding three months' imprisonment with or without hard labour in default of payment of any fine inflicted.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 211 of 1907.

Department of Agriculture.

Administrator's Office,

Salisbury, 3rd October, 1907.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby cancel Government Notice No. 157 of 1907, and declare the following to be of full force and effect in lieu thereof:—

Until further notice no person shall introduce into Southern Rhodesia from the area of Cape Colony, lying East of and including the divisions of George, Oudtshoorn, Uniondale, Willowmore, Aberdeen, Murraysburg, Rich-

mond, Britstown, Hope Town, Herbert and Kimberley, any nursery stock, ornamental plants and shrubs, fruit or portions thereof, save as is in the next succeeding paragraph provided.

Any consignment of farm produce (which term shall include articles of consumption grown on a farm other than produce of a vine) may be introduced if accompanied by a certificate of a Magistrate or a Justice of the Peace of the district in which it is produced to the effect that such production was outside a radius of one quarter of a mile from any vine, virginian creeper or plant belonging to the family *vitaceæ*.

If at any time an Inspector shall find any tree, plant, fruit, vegetable, or portion thereof introduced into this Territory in contravention of this Regulation he shall order the same to be immediately removed from the Territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stock from the aforesaid areas which have been granted under Section 16 of Government Notice No. 141 of 1906 shall be and are hereby withdrawn.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 236 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 21st November, 1907.

#### IMPORTATION OF PLANTS, ETC., REGULATIONS.

UNDER and by virtue of the powers vested in me by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that, notwithstanding anything to the contrary appearing in Government Notice No. 141 of 1906, and until further notice, the importation into this territory of any tree, shrub, or vegetable, and the fruit, leaves, cuttings, bark or any part thereof whatsoever, except seed, from the Orange River Colony is strictly prohibited.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof introduced into this territory in contravention of this regulation, he shall order the same immediately to be removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stocks from the aforesaid Colony which have been granted under Section 16, Government Notice No. 141 of 1906, shall be and are hereby withdrawn.

Any person guilty of a contravention of these regulations shall be liable to a fine not exceeding £10, or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

Department of Posts and Telegraphs,  
Southern Rhodesia.

Postal Notice No. 34 of 1907.

# IMPORTATION INTO THE UNITED KINGDOM OF SAMPLES AND SMALL QUANTITIES OF TOBACCO.

THE following Memorandum as to the conditions under which small quantities of Tobacco can be imported into the United Kingdom is published for general information:—

## MEMORANDUM ISSUED BY THE BOARD OF CUSTOMS AS TO THE IMPORTATION INTO THE UNITED KINGDOM OF SMALL QUANTITIES OF TOBACCO, CIGARS AND CIGARETTES.

The importation of Tobacco, Cigars and Cigarettes into the United Kingdom is prohibited except at Ports approved for the purpose, and in packages of a gross weight of not less than 80 lbs., but the Commissioners of Customs, in the exercise of the discretionary powers vested in them, do not enforce the full penalty of forfeiture of smaller imported quantities, *i.e.*, in packages weighing less than the legal weight of 80 lbs. gross, but allow them to be admitted on payment, in addition to the duty, of a fine of 6d. per lb. or fraction of a lb. if the goods are duly entered in the importing ship's report, or, if imported by Parcel Post, duly declared by the sender. Goods not so reported or declared are liable to detention, but the Commissioners allow delivery, where, in their opinion, the circumstances justify it, upon a fine of 9d. per lb. or fraction of a lb.

Cavendish or Negrohead Tobacco, which is prohibited from importation except to be warehoused, is similarly allowed to be admitted for private use upon an additional fine of 6d. per lb. or fraction of a lb.

Unmanufactured Tobacco is admitted on payment of a fine of 3d. per lb. or fraction of a lb. when duly reported or declared, or of 6d. per lb. or fraction of a lb. when not so reported or declared if delivery is allowed.

In all cases the amount of the fine is calculated on the actual number of pounds of Tobacco, etc., in the package, or on the number of pounds by which the gross weight of the package falls short of 80 lbs., the fine being fixed at the smaller of the two alternative quantities and the full fine per pound being levied in respect of any fraction of a pound.

The Duties on Tobacco, etc., as now in force, are as follows:—

Tobacco, manufactured, viz.:		s.	d.
Cigars .. .. .	the lb.	6	0
Cigarettes .. .. .	..	4	10
Cavendish or Negrohead ..	..	4	4
Other manufactured tobacco ..	..	3	10

Tobacco, unmanufactured, containing 10 per  
cent. or more of moisture:

If stemmed or stripped .. .. .	3	0½
If unstemmed or unstripped .. .. .	3	0

Tobacco, unmanufactured, containing less than  
10 per cent. of moisture:

If stemmed or stripped .. .. .	3	4½
If unstemmed or unstripped .. .. .	3	4

As regards parcels of Tobacco, Cigars or Cigarettes imported through the medium of the Foreign and Colonial Parcel Post, or from the Channel Islands by Inland Post, such parcels are on arrival at the Parcel Post Depot at Mount Pleasant, Farringdon Road, London, or at the Parcel Post stations at other ports, as the case may be, opened and presented by the Officials of the General Post Office (as representing the Importer), to the Officers of Customs, who examine the contents and assess the Duty and fine payable thereon, and the Duty, etc., so charged is collected by the Postal Officials on delivery to the addressee.

(Signed) R. HENDERSON,

Secretary.

Custom House,

London, October, 1905."

Postal Parcels from Southern Rhodesia to the United Kingdom are limited to 11 lbs. in weight.

The importation of tobacco by "Sample Post" into the United Kingdom is prohibited, with the sole exception of type samples of *unmanufactured* tobacco not exceeding 4 ozs. in weight which are delivered on payment of 9d. Customs duty.

It should be noted that samples of tobacco tendered for transmission by "Sample Post" must be forwarded for *bona fide* trade purposes only.

G. H. EYRE,

Postmaster-General.

General Post Office,

Salisbury, 11th November, 1907.

(2885-07).

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No. 9 of 1907.

#### NORTH-WESTERN RHODESIA.

**W**HEREAS there is reason to believe that certain diseases in cattle exist in the Territory of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, and it is therefore expedient to take measures to prevent the spread of such diseases to North-Western Rhodesia.

Now, therefore, under and by virtue of the powers in me vested by Section 2 of His Excellency the High Commissioner's Proclamation, No. 18 of 1906, bearing date the 31st day of July, 1906, I do hereby order and declare and make known as follows:—

1. That Government Notices, No. 2 of 1902, and No. 11 of 1906, are hereby withdrawn, and the following Regulations substituted:
2. The introduction of any bull, ox, cow, heifer or calf or the meat of any such animals, into the Territory of North-Western Rhodesia from the Territories of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, is prohibited until further notice.
3. No person shall introduce into the Territory of North-Western Rhodesia from the Territories aforesaid, any horse, mare, gelding, mule, donkey, sheep, goat or pig, horns or skins, or any kind of vehicle, wagon gear, trek gear, or harness, without having first obtained the special permission in writing of a District Commissioner, Civil Commissioner, or other person thereto authorized by me; and such animals, horses, skins, vehicles, gear, or harness, shall enter the Territory of North-Western Rhodesia at such place, and under such conditions as regards quarantine and disinfection, as shall be ordered by the person issuing such written permission as is above described.

4. Whenever any conditions as to quarantine, isolation, disinfection or otherwise, are imposed, such conditions shall be fulfilled at the sole risk and expense of the owner, consignee, or other person concerned.
5. All live stock imported into the Territory by rail by way of Victoria Falls and Livingstone, shall be inspected at Livingstone Station, and, whenever disinfection is ordered, shall be disinfected at that Station.
6. In the case of live stock consigned to any point on the railway line north of Livingstone Station, the officer authorized to issue the written permission aforesaid shall further order the disinfection of the truck or horse-box in which such stock is being conveyed. Such disinfection shall be carried out at the expense of the owner or consignee of the stock, or other person concerned therein.
7. Consignors and importers of live stock shall give not less than seven days' notice of the arrival of such stock at Livingstone Station. Such notice shall be given to the Civil Commissioner, Livingstone, or to such other official as may hereafter be appointed.

ROBERT CODRINGTON,  
Administrator.

By command of His Honour the Administrator,

HENRY RANGELEY,  
Acting Secretary.

Administrator's Office,  
Livingstone, North-Western Rhodesia,  
30th September, 1907.



# DISEASES OF ANIMALS ACTS, 1894 TO 1903.

## NOTICE.

### IMPORTATION OF HORSES, ASSES, AND MULES INTO GREAT BRITAIN.

THE Board of Agriculture and Fisheries desire to call the attention of all concerned to the following provision contained in Article 2 of the Glanders or Farcy Order of 1907, which comes into force on the 1st January, 1908:—

No horse, ass, or mule, brought to Great Britain from any other country, except Ireland, the Channel Islands or the Isle of Man, shall be landed in Great Britain unless it is accompanied by a certificate of a veterinary surgeon to the effect that he examined the animal immediately before it was embarked or whilst it was on board the vessel, as the case may be, and that he found that the animal did not show symptoms of glanders or farcy.

The Order further enacts that if any horse, ass, or mule is landed in contravention of the Order, the owner thereof, and the owner and the lessee and the occupier of the place of landing where such animal is landed, and also the owner and the charterer and the master of the vessel from which the same is landed, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894, and renders himself liable to a penalty of £20.

T. H. ELLIOTT,  
Secretary.

Board of Agriculture and Fisheries,  
4, Whitehall Place, London, S.W.,  
2nd September, 1907.

## Departmental Notices.

### DESTRUCTION OF WILD CARNIVORA.

It is hereby notified for public information that commencing on 15th June, 1906, rewards will be paid for the destruction of wild carnivora, within the limits of Southern Rhodesia, on the following terms and conditions, viz. :

- £2 10s. each for Lions.
- £1 each for Leopards and Cheetahs.
- 10s. each for Wild Dogs.
- 5s. each for Jackals, Tiger Cats and Redcat or Lynx.
- 2s. 6d. each for Baboons.
- 1s. each for Grey Monkeys.

Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the District.

In proof of destruction, applicants for rewards will be required to produce and surrender the skulls of lions and the tail and skin of head and neck of other animals destroyed. Of young animals, where the tail is less than six inches in length, the complete skin must be produced.

Applicants must be prepared to make a solemn declaration to the effect that the animals for which rewards are claimed have been captured and killed within the boundaries of the district of Southern Rhodesia wherein the claim is made and subsequent to June 15th, 1906.

### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

### STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 1s. 6d. per half ounce.

## DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

## GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree.*—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

A stallion, bred in the Limpopo Valley, from immune stock, and a good stamp of colonial horse, has been secured by the Government, and will be stationed at Gwelo for stud purposes up to about the third week in December, after which date he will be sent to Enkeldoorn District for stud under the same conditions as stallions are available at Salisbury and Bulawayo.

## VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

### PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

### CULTIVATION OF TOBACCO.

The following notes on the cultivation of tobacco, by George Milton Odium, Esquire, Agricultural Assistant, are published herewith for the information of tobacco growers :—

#### PLANT BEDS.

Burn the site. Close sides with brick or iron. Cover with very thin open calico. Sow seeds with ashes, sand, or meal. Use commercial manures. Sow succession of beds. Harden off plants by removing covering. Do not waste the Turkish seed, which is difficult to secure.

#### PREPARING THE LAND.

Plough deeply. Have the soil in perfect tilth. Use fowls and poison to destroy insects before planting time. Prepare flood-water drains.

#### TRANSPLANTING.

Use strong, healthy plants only. Water bed before drawing plants. Do not draw much ahead of planting requirements. Do not mix varieties. Give each variety the correct distance. Set the plants firmly; do not leave them dangling in a hole. Do not plant in depression where soil can be washed over them. Define rows with a home-made marker. Do not splash water on plants, but pour in a hole beside them. If shading, remove covers as soon as possible, for insects will shelter beneath it. Replace "misses" as soon as convenient, and thus secure an even "stand."

#### CULTIVATION.

Keep soil thoroughly stirred by means of hand and horse propelled implements. Do not permit earth to cake around the plants. Weeds are a breeding place for

fungoid diseases and insects. Good leaf depends upon rapid and constant growth. The growth is in a large measure dependent upon the degree of cultivation.

### INSECTS.

Flocks of turkeys, ducks, and fowls will hold these in check. Poison is the next best thing. For grasshoppers and beetles, spray field and border with Paris Green at the rate of 1 lb. for each 100 to 150 gallons of water. Add some freshly slacked lime to prevent "burning."

### WHITE BLIGHT.

Keep field and border free from weeds and vegetation. The blight spreads from these. Remove inferior lower leaves to a height of 1 foot at an early stage of growth. The blight first gains a foothold on the lower leaves. Circulation of air through the field prevents it. Nothing is lost by removing the lower leaves, for more higher leaves are left to replace them. Remove any other infected leaves. Spray with one per cent. solution of copper sulphate, to which some freshly slacked lime has been added.

### SUCKERING.

Remove all "suckers" and "sprouts" as often as they appear.

### TOPPING.

Do not be in a haste to "top," but wait until the flower stalk is well up. Topping is a matter of judgment, and the number of leaves left varies with each plant; and is determined by the vigour of the plant, the character of the season, and the purpose for which the crop is being grown. If too many leaves are left, they will be thin and lifeless; if too few, they will be coarse. Err in the direction of leaving too many; additional leaves can be removed later if necessary. Late rains and new growth often coarsen plants that otherwise were correctly topped.

### PREPARATIONS.

Have baskets, sticks, needles, twine, presses, barns, and labour provided for, well in advance of the season. Neglect in this particular means badly handled tobacco and loss of time and money.

## CAUTION.

Do not cling too closely to any particular practice. Methods must vary with seasons and conditions, but the methods must be based on the principles underlying the growth of the tobacco plant and the production of good tobacco. Unless you know what is required, and what any particular will accomplish, you are working in the dark.

If tobacco could be grown anywhere and everywhere, it would have no value. A business that gives so good a return cannot be left to chance. Do not be misled into thinking that you will achieve a high degree of success from the beginning, for it takes some years to adapt methods to conditions.

## TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	s.	d.
Turkish, Smyrna ... ..	1	6
Turkish, Cavalla (an aromatic variety) ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0
Conqueror (a heavier variety than the two former) ... ..	1	2
Bullion, do. do. do. ...	1	2
Zimmer Spanish (a hardy cigar tobacco) ...	1	6
Cuban Leaf (a cigar variety) ... ..	1	6
Sujatra (a cigar tobacco, wrapper) ... ..	2	3
White Burley (a bright Virginia, somewhat heavier than Hester) ... ..	1	6
Warne, do. do. do. ...	1	6
Connecticut Seed Leaf (a large cigar variety)	0	10
Kentucky Yellow (a dark rich large leaf) ...	1	0
Sweet Orinoko (used for plug fillers, a chewing tobacco) ... ..	0	10
Melton Prior (a dark strong leaf) ... ..	1	0

	s.	d.
Lacks (a broad leaf, tough, fine fibre; on grey soils cures bright and elastic, on dark, rich and gummy) ... ..	1	0
Honduras (a bright mahogany) ... ..	1	2
Havanah (a cigar variety) ... ..	1	0

### TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price  $2\frac{1}{2}$ d. per square yard.

### CULTURE OF TOBACCO.

This book, by G. M. Odlum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

### FRUIT NETTING.

The Anglo-African Trading Company have also a stock of fruit netting for protecting fruit trees from the attack of fruit fly and other injurious insects, also birds.

### TEFF GRASS.

Teff Grass seed is available for distribution in small quantities on application to the Department. The quantity required per acre is  $2\frac{1}{2}$  lbs. sown broadcast.

### TREES FOR SALE.

A quantity of the following trees, planted in tins, are for sale at the Experimental Station, or on application to the Department:—

- Euc. tereticornis.
- Euc. saligna.
- Euc. botryoides.
- Euc. rostrata.
- Euc. salubris.
- Euc. leucoxydon.
- Euc. coriacea.
- Casuarina leptoclada (Beef wood).

Price 8s. 4d. per hundred. Remittance and cost of railage must accompany order.

## PRIZE COMPETITION FOR RHODESIAN GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown each season during the two years, 1907 and 1908.

1. For Rhodesian grown leaf from Turkish seed and cured in the usual Turkish manner.

(a) Best crop weighing between one thousand and five thousand pounds: £25

(b) Best crop weighing five thousand pounds and over: £75.

2. For Rhodesian grown leaf from American seed and flue cured.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over: £75.

### CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.

2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.

3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.

4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.

5. No competitor shall enter for both prizes in the same class.

6. All competing crops shall be the product of the season in which they are entered for competition.

7. Crops can be lodged at one of the Company's warehouses, which will be advertised later, any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st October in each year.

## INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

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In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows :—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

TOBACCO TRANSPLANTS FOR SALE.

We are prepared to supply large quantities of the Bright Virginian type, grown from Imported Seed, obtained from the Agricultural Department, also from our own Acclimatised Seed.

Price, 15/- per 1,000 f.o.r., Norton's or Hunyani Siding.

Apply Manager,—

B.S.A. TOBACCO PLANTATIONS LTD.,  
Hunyani.

## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Messrs. Hart and Co., Parker's Buildings (P.O. Box 898), Cape Town, Advertising Agents for Cape Colony, Transvaal, Orange River Colony, Natal, and Great Britain. J. Kapnek, P.O. Box 91, Salisbury for Rhodesia.

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## Farmer's Advertisement.

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**B**REEDER of Dairy Cattle has on hand Young Bull Calves from Cape Cows (Frieslands), £10 each, taken at 8 months.—C. C. Macarthur, Box 284, Salisbury.



# THE RHODESIAN AGRICULTURAL JOURNAL

Issued by the Agricultural Department.

EDITED BY L. A. KING-CHURCH.

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## Editorial.

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Mr. Cameron's article on Lime and Phosphates seems to open up a possibility of obtaining a fair supply of lime suitable for agricultural purposes, practically within reach of every farm, for no district is far removed from the granite formation. "It is of practical importance that the attention of farmers should be directed to this source, where the materials for soil improvement are lying already on the ground." There is no doubt that many crops and all stock would benefit from a good application of lime to the land, and the cost of transport and difficulty of procuring this valuable material may be avoided, by investigating the ant heaps so noticeable a feature of the Rhodesian landscape.

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Two interesting papers, one on the Agricultural Union Conference, and the other on Agricultural Co-operation, will be found in this Journal. Both demonstrate the increased interest taken in agriculture generally, and the advantage to be gained by farmers in being able to meet together and discuss with experts the numerous branches of their work, and thus gain a clear insight into the latest

proved methods of increased production, and of marketing, whether collectively or as individuals, their produce in the most remunerative form and advantageous manner.

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Mr. McIlwaine again takes the opportunity of pointing out another branch of farming which undoubtedly holds out a promise of rich rewards, to those who will undertake the growing of Citrus fruit in Rhodesia. The present yield of South African citrus groves is not largely in excess of the local demands, and we are so situated that there seems no reason why the large profits made in Florida, and other citrus producing countries, should not be made here also, if proper attention and energy is devoted to the industry. The natural advantages of Rhodesia are clearly pointed out, viz., suitable and cheap land, abundant and regular rain, suitable atmospheric conditions for the growth, ripening, and harvesting of the crop, cheap unskilled labour, no serious insect pest, and a market not glutted by the produce of other countries at the time when Rhodesian fruit is ready for it.

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Mr. Cookson's letter, entitled "A Plea for Extended Cultivation in Rhodesia," undoubtedly points out the direction in which the farmers' energies should be directed in finding a steady market, but it is possibly too optimistic in some respects. In speaking of the price of Natal mealies in London, practically the top price is mentioned. This is scarcely a fair basis on which to make calculations. The price of American and European mealies on the English markets averaged for 6 months 21s. 6d. to 26s. 6d. per quarter of 480 lbs., according to the season and quality of the grain; granted that Rhodesian mealies are as good or better than those offered, yet the whole crop exported can scarcely be expected to fetch top price, and thus the average is at once lowered. Mealies, when used for feeding, are chiefly bought by the home farmer when the price of other grains, such as barley, is high, and this probably holds good for the manufacture of alcohol also, so that the price is bound to fluctuate, not only on account of the quantity and quality of the mealies themselves, but also on the supply and price of other grains in many cases preferred for fattening stock.

In drawing attention to this point, it is not intended to prove that the export of mealies will not prove remunerative, for undoubtedly there is an over-sea market and a good market for this crop, and the matter of organising an export scheme is receiving the due attention of the Government, and will doubtless be completed by the time the present season's grain is ready for market.

The markets of Africa are not yet fully supplied, as is instanced by the recent enquiry from the Crown Colony Agents whether Rhodesian mealies could be supplied for the use of the Government of Somaliland, the amount required, from 1,500 to 2,000 quarters, is not great, yet there may be a much larger market in this direction, if transport facilities can be arranged so that the grain is landed at a reasonable price.

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## **Lime and Phosphates in Rhodesian Soils.**

By J. CAMERON.

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In viewing certain Rhodesian soils, especially on the granite formation, one of the most marked features is the low content of lime coupled with a meagre supply of phosphates.

In the red soils while the lime content is low the presence of phosphates is more persistently manifested.

In granite soils the percentage of phosphoric acid seldom exceeds 0·008 per cent. in the first ten inches of soil, while the next 14 inches contains practically an equivalent amount.

The lime in these same granite soils seldom exceeds 0·015 per cent., which is lower than what should be expected considering the derivation.

Apart from the ordinary processes of exhaustion, such as burning and wind, flooding and leaching out of lime, there is reason to believe that special agencies have been at work in eliminating lime and phosphates from the soil, at any rate in certain localities in widely separated districts.

The termite mounds, or ant heaps, as they are commonly called, contain deposits of material in a condensed form like a core inside the mound amounting in some cases to over 20 tons.

This material is composed of 50 per cent. silica, 38 per cent. carbonate of lime, 3.5 per cent. phosphoric acid, 2 per cent. magnesia, and 3 per cent. iron.

There is no organic matter. This mass is not mixed with the soil of the mound throughout, but is a distinct accumulation inside at about two feet from the surface and following the outline of the mound.

These dome-shaped heaps are of all sizes up to 10 feet high and 30 feet in diameter.

While this core or deposit occurs in these mounds as a concrete mass, yet in many places over the veld nodules of lime lie scattered over and through the soil. The derivation of these, however, is traceable to anthraxes, as they always occur where anthraxes are prevalent and nowhere else.

It is manifest that the nodules are concretions arising from the breaking down, weathering and dissolving of the material which had first been accumulated within the mounds.

The composition of the nodules corresponds closely with the material found in the mounds, with the exception that the nodules contain a much higher percentage of lime. This amounts in some instances to as much as 88 per cent. lime carbonate, with 4 per cent. phosphoric acid and 3 per cent. iron.

This result would naturally follow if the nodules are considered as being secondary formations composed of the more soluble materials, but having a nucleus of the original aggregate or other rock material.

In the beds of water-courses running through where these lime-bearing mounds occur there are quantities of nodules met with that have been exposed where the torrents have torn up the banks. Wherever the water-course has worn into a mound the lime accumulation is revealed thereby showing the source of the nodules and the mode of their distribution throughout the deep alluvial soils in valley bottoms.

It does not appear conclusive, however, that lime is deposited in mounds belonging to every formation. In the soils that are directly derived from and are chiefly composed of banded ironstone, while the mounds occur in all respects apparently formed by the same agency, yet so far no lime deposits have been found therein.

These calcareous accumulations are most prevalent in the granite and its allied rock formations, the schists, gneiss and diorite.

It must be understood that this peculiar occurrence of lime is not confined to any particular locality or district, but it obtains throughout the whole length of Rhodesia from Plumtree, in the South of Matabeleland, to Lomagundi, in the North of Mashonaland.

Samples of nodules have come to the Laboratory from both these, and also from most of the intermediate districts lying between, thus showing that their presence extends over a vast area. Nor are these nodules depending on a strata of lime being in the formation, inasmuch as the largest deposits hitherto met with have been found where the only rock present and around is solid granite.

There are secondary deposits of lime on the head waters of the Tataguro and Mazoe rivers and no doubt on many other streams throughout Rhodesia; but in these cases the lime can be traced to springs where it is held in solution, until coming to the surface and undergoing evaporation the lime is deposited in layers which sometimes accumulate to several feet in thickness.

Such lime always contains a good deal of organic matter, but no phosphates, nor does it segregate out into nodules but remains in an amorphous mass.

What constitutes a marked difference between these mounds and all other lime formations is that to the former no aqueous origin seems applicable. The mounds occur on high and on sloping ground as well as on the level veld, often where connection with springs or underground water is scarcely conceivable.

The mounds are dotted over the veld irregularly, seldom close together but standing singly at considerable intervals. In places where they abound there might be two or three per acre, but generally they are at much wider spaces. Nor do they all contain lime either in a definite quantity in relation to the size of the mound or to be depended upon as containing any at all, only a large number of them do hold it.

It is not altogether to be taken for granted that the mounds had been built up by the same species of termites that are now seen to be working. Nor has it been de-

terminated that the process of lime accumulation is still proceeding within these heaps. There is no trace of lime obtainable in the live workings, a layer of earthy matter lying between them and the lime deposit beneath. More extended investigations will require to be made before these and many other points are cleared up.

It is not intended in this article to submit any theory proposing to give an explanation of what may be the cause and origin of these lime deposits. It is not necessary to merely discuss how or whence it comes to be where it is, for it is sufficient for practical purposes that the fact is established that the lime is there and in a condition easily available for beneficial application to the land.

It is of practical importance that the attention of farmers should be directed to this source where the materials for soil improvement are lying already on the ground.

It may be accepted that whatever may have been the active force at work in forming these deposits, the source from which the lime has been drawn is the soil in the immediate vicinity, either directly eliminated, or indirectly from the inorganic residue of vegetable and animal matter.

In taking this to be the case, it follows that a certain area surrounding the mounds has been deprived of lime and phosphates, these bodies having been extracted from the soil and deposited inside storehouses.

It is a matter of common recognition that the land lying between ant mounds is less fertile than the general appearance of the soil would indicate, and on analysis both lime and phosphates show deficiency.

Indeed it has been demonstrated that in cases where lime containing mounds are broken up and spread around the crops have shown conspicuous and continued improvement.

But it is not only on the land where the mounds actually exist that benefit can be given, since a great deal of other land will soon require artificial applications in order to maintain full fertility. But the mounds often exist in places unsuited for cultivation so their contents are available for transport to wherever required, crushing only being necessary before application.

There is no doubt that the distribution of the contents of mounds over grass lands would effect beneficial influence on the quality of the grass for stock feeding since bone-forming material would thereby be gained.

It is desirable that as much information as possible be acquired concerning these deposits and the manner of their occurrence, and the farmers are invited to send specimens to the Laboratory, together with their observations as to where and how they are found and digging into mounds for this purpose.

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## **Report on Inter-Colonial Agricultural Union Conference, held in Pretoria, Transvaal, September 30th, 1907.**

By J. A. EDMONDS, President, Agricultural Union, Rhodesia.

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As delegate appointed by the Rhodesian Agricultural Union, I attended the Inter-Colonial Agricultural Union Conference on 30th September. On behalf of the Transvaal Government, General Smuts (the Transvaal Colonial Secretary) welcomed the delegates to Pretoria, and in a most able speech of an hour's duration, touched on the problems and position which confront to-day the farming community of South Africa. He referred to the cry from the various Colonies for the development of local industries, but this could be of no avail until Agriculture was prosecuted much more vigorously, artificial industries were impossible to maintain. The necessities of life must be greatly reduced, resulting in a large white population being attracted to South Africa.

General Smuts referring to the time, only a few years ahead, when South Africa would have a meat surplus over her own needs, mentioned the necessity of considering quality more than quantity, whereby we shall be able to compete on equal terms with other exporting countries of the world—the day would come when quantity would become embarrassing and quality would help.

As an example of what combined effort and organisation will effect, the speaker mentioned that, after forty years of lung sickness, the Transvaal was to-day free of that disease. He advocated combined effort in dealing with the locust plague.

A strong point was made of the necessity for agricultural education to give an opportunity for the youth of South Africa to hold the expert positions filled to-day by men from other parts of the world. The most encouraging sign, in his opinion, was the growth of the Co-operative spirit in the Orange River Colony, Cape Colony, Natal and the Transvaal.

The President, Mr. C. G. Lee, then delivered his inaugural address, and congratulated the Congress on the important fact that whereas at last year's Congress only three States were able to send delegates, now every State within the sphere of British rule south of the Zambesi was represented. This meeting of responsible farmers from all parts of South Africa, and the interest shown by the various Governments in sending their experts and scientific officials, could only result in the greatest benefit to South Africa as a whole.

The business on the agenda was then proceeded with.

The voting, where a division was called for, was arranged as follows:—Ten votes each for the Transvaal, Cape Colony and Natal, and one vote each to the Orange River Colony, Rhodesia and Portuguese East Africa, which Colonies were not yet affiliated.

The most important subjects dealt with were:—

The question of stock diseases.

Railway questions.

Agricultural Shows, judging and special prizes.

Agricultural Education.

Ocean Freights on live stock.

Purchase of land by natives.

Locust destruction.

Noxious weeds.

Uniform weights and measures for produce.

A South African Agricultural paper, etc., etc.

All these matters and many others were very fully entered into, and great assistance was given to the deliberations by the various experts and scientific officers of the various States being present, and it was generally felt that in view of the fact of the Congress being so

universally representative of South Africa, the solution of the many problems confronting the development of our country would be more speedily dealt with and overcome.

An earnest desire was expressed that before next year all the States represented would be affiliated to the Inter-Colonial Union.

A most interesting paper was read by Dr. Theiler on the diseases of stock in South Africa. In dealing with "Tuberculosis," he said it constituted a menace to South Africa, in spite of the opinions sometimes held that South African conditions were not favourable for its propagation. The disease already existed in the Cape Colony. Dr. Theiler laid stress on the fact that the multiplicity and variety of stock diseases in this country made it imperative that the farmers should have the assistance of scientists and trained men to study these diseases and spread the knowledge acquired amongst the farmers.

The Congress having sat on Monday, Tuesday and Wednesday midday (morning, afternoon and evening sittings) the delegates were taken out to Onderstepoort where a most up-to-date bacteriological institute is being constructed for Dr. Theiler. The conveniences for pursuing his scientific work will be of untold value not only to the Transvaal but to South Africa as a whole. It was on this visit we were informed that within two years' time it is more than probable that a virus against "horse-sickness" in horses will be in general use. At the present time it is possible to render immune 80 per cent. of horses against the dread scourge.

The only known agent so far as infecting horses is the "mosquito stegameia."

At the Onderstepoort Station rooms are being built to accommodate students of animal bacteriology from other parts of South Africa. From Onderstepoort we drove to Skinners Court Botanical Station, where Mr. Burt Davy very kindly showed us the many experiments being made in testing valuable fodder plants for winter feeding, etc. The following struck me as most suitable as feed during our two or three winter and spring months of scarcity:—

"Sheeps Burnet," a fodder plant, green all the winter and hardy, a perennial, sown broadcast, the seed obtainable from Messrs. Carter and Company, of Pietermaritzburg.

New South Wales "Blue Grass," described to us as the best sheep grass tried, and which takes naturally to South Africa. This grass makes a good hay, readily consumed, the grass seeds profusely; also Southern Cow Pea, returning 14 tons green food to the acre and in feeding value almost equal to lucerne.

Mexican grass was also strongly recommended as an early spring sheep feed.

At this Station we saw several plots of dry land lucerne, and though the experiments were not sufficiently advanced to speak positively, the results looked most promising.

The following day we proceeded to Potchefstroom and went over the Experimental Farm there. The results of orchard crops and pedigree stock raising are truly marvellous, considering that in the first instance, previous to thorough steam ploughing and cultivation, the soil was considered to be very inferior; method and good management were apparent everywhere, and the green crops were a treat to observe. Perhaps the most interesting feature of this Experimental Station was the fine pedigree stock—cattle, horses, sheep and pigs. Lincoln Red Shorthorns, Ayrshires, Herefords, Red Polls and Aberdeen Angus are some of the breeds kept, and a keen competition takes place each year amongst farmers to secure the progeny of all stock sold off to make room.

The manager informed us that from an educational point of view, this up-to-date Experimental Farm was much appreciated by the farmers of the Transvaal, and the results were being made use of by many hitherto conservative farmers who now realise that if South Africa is to hold her own and progress old and obsolete methods must be abandoned.

The pigs, too, were exceptionally fine, consisting of Tamworths, Yorkshires, large British Blacks and Berkshires. The best cross, I was informed, was that between Tamworth and British Black.

A useful fodder grass here noticed was Teff Grass. This is a fine growing sweet grass, and is sown with oats. I subsequently observed much of this, cut with oat forage and baled, sold on the Johannesburg Morning Market. It is certainly worth trying in Rhodesia. It is a quick growing grass, arriving at

maturity in two months' time, and is a native of Abyssinia. Only two lbs. per acre is required.

MEALIES.—The average yield per acre of mealies on this farm prior to the use of fertilizers was three bags per acre; the average now throughout is fourteen bags, and this is taking into consideration that many experimental varieties are tried, which do not invariably succeed.

The two best varieties of mealies obtained so far, from the yielding point of view, are Yellow Hogan, and in the white variety, "Wood's Northern White Dent." I was able to get a small quantity of these seeds with which to experiment in this country.

During our tour of this farm I asked the opinion of two well-known ostrich men—Mr. Edmeades and Mr. Evans, of Cape Colony—as to the possibility of the industry being successful in Rhodesia, considering the fact that vast tracts of Rhodesia are the birds' natural habitat. Their opinion was that where lucerne could be grown ostriches were worth going in for. It was unprofitable to produce any but the best feathers. If the wild birds were used as a basis for breeding, the best imported birds should be used to mate with them. The nett profit now obtainable is £40 per acre on feeding ostriches on lucerne. The price of well-bred chicks has risen up to £20 each.

I must not omit to say that during the Conference I had several talks with our former old friend, Mr. Gray, now principal Veterinary to the Transvaal, and he sounded a sincere word of warning to us to take steps in time to avoid the spread of tuberculosis in cattle and swine fever in pigs from invading and spreading in our territory. Mr. Gray's comments on these points have already appeared in the local press.

To end up a most interesting week, the delegates were invited to inspect the Premier Diamond Mine and the Angela Gold Mine, one of the East Rand group.

It was at the Premier Mine that the famous Cullinan diamond, to be presented to the King by the Transvaal Government, was found. This mine pays in royalty to the Transvaal Government £300,000 per annum, and £1,000,000 has been spent in erecting plant, etc., resulting in a yearly output of one-third of the world's yearly production of diamonds.

The Angela Gold Mine, with its 220 stamps going, its Chinese Compound and complete up-to-date requirements, provided an interesting comparison with the small worker and Tributor of Rhodesia. In conclusion, I would say that at the present time, in the older Colonies of South Africa, there is a distinct and renewed interest being shown in Rhodesia and her potentialities. Let us be wise and profit by the same.

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### **Agricultural Co-operation in Rhodesia.**

Address delivered by Mr. P. J. HANNON, Superintendent of Agricultural Co-operation for the Cape Colony, at Salisbury, 12th December, 1907.

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I hope the meeting will clearly understand that anything I say this morning will be entirely in the way of suggestions, and with the object of affording those interested the opportunity of discussing such proposals which I may venture to submit, and of so modifying them as to make them applicable to the conditions which obtain in this Colony. I have to deal with the application of Agricultural Co-operation to the economic conditions of Rhodesia. Most of you are familiar with the remarkable progress which has been made during the past twenty years in nearly all our British Colonies, and in most agricultural communities in the world, and you will have observed, no doubt, that that progress has been almost wholly due to certain contributing factors without which, in the light of modern experience, agriculture cannot be placed upon a permanent industrial basis. These are judicious application of State Aid to self-help on the part of the farmer, that is to say that Governments having seen that the farmer himself was prepared to take certain measures of responsibility and employ his best energy in the work in which he was engaged, came to his assistance, and on certain practical, well-defined lines gave him that thoughtful aid without which he could not alone achieve continued prosperity. Secondly, the spread of agricultural education in every part of the world, and the development of research and experimental work in every branch

of agriculture, have enormously enlarged our knowledge of everything affecting the land, and thus enabled producers to obtain with given raw material the largest results. Thirdly, the remarkable revolution in the organisation of our markets. To-day in London, Manchester, Liverpool, Birmingham, Glasgow, or in any of our large centres of population, you have the curious set of facts presenting themselves every morning in the week of practically every nation in the world competing for the British consuming trade in agricultural produce. You have to-day in the morning markets of British towns the producer in our most remote Colonies, and at points 15,000 miles from the centre of distribution, from the Argentine, from the far west of the United States, from the remote north-western territory of Canada—you have all these countries putting their produce into our home markets into competition with the farmer who lives within a radius of a few miles of that market. I only mention this in order that in entering upon any scheme of agricultural development in Rhodesia we shall understand that the considerations which govern our work are not limited by the boundaries of this Colony, but are more or less to be taken into account in connection with whatever progress is being made in any other part of the world. Now, I said that State Aid in conjunction with self-help on the part of the farmer was one of the means by which the great changes in the present position of farming have been brought about. But in South Africa the farmer does not always appreciate the precise meaning of State Aid. If there is one fault more than another in South Africa of which I have to complain—and I make my complaint in the fullest sympathy with the farmer himself, whose interests are entirely mine—it is that there is too much of a tendency to always look to the Government for almost everything. In those countries to which I have referred, and where the progress to which I have alluded has been made, the State only came to the assistance of the farmer when the farmer himself proved that he was worthy of assistance. To lay substantial foundations for the future of South Africa, we must undoubtedly recognise the significance of the same principle. The farmer, through organisation, by combination with his fellow-workers, by looking to the future rather than limiting his field of view to the immediate present, is in a position to

lay down a certain programme of activity for himself; and having, as far as his means will admit, or the means of the organisation to which he belongs will admit, asserted his sincerity in the desire to improve his position, then in a variety of ways the State can come, and as a matter of fact is bound to come, in the best interests of the country, to his assistance. In schemes of agricultural education, in experimental work, in the protection of the farmer in the purchase of his agricultural requirements, in facilitating transit, in exploiting over-sea markets, in securing adequate protection for him in the markets of his own country, in placing at his disposal the best expert advice that can be procured on any subject with which he has to deal—in all these ways the State can assist the farmer. But the suggestion that it would be in the best interests of agriculture in any country that the State should indiscriminately subsidise, or make advances for the development of farming without the condition of self-help and self-effort being clearly understood, would be a thorough fallacy. When one comes for the first time to talk about agricultural co-operation in a community like this, there are certain obvious difficulties which present themselves from the point of view of the constitution of the community; one of them is that the commercial people very often look upon all schemes of co-operation as somehow or other tending to injure them. Well, I want it to be clearly understood as a Government Officer myself—and speaking at a meeting presided over by a gentleman interested in the Government of this Colony—that no scheme of this kind could in any way have associated with it Government support if it were not perfectly understood that every section of the community should have their interests considered, and that instead of inflicting injury upon any, it would tend to the advantage of all. A Co-operative Society will enable the farmer perhaps to sell his produce or to purchase his requirements on a wholesale basis, thus obviating the presence of what is commonly called the middleman; and in doing so undoubtedly do work which is distinctly to the advantage of the producer, or the farmer purchaser, as the case may be. But it must always be remembered that in dealing with agricultural production you can only get the best result when the cost is reduced to a minimum, and therefore every agency in the country should recognise that

the lower you make the cost of production to the farmer, the more will you tend ultimately to enhance the wealth-producing capacity of the entire country. In the Cape Colony the commercial community now recognise that any scheme that puts the farmer in a better position to dispose of his produce or to raise more crops upon his land, increases the wealth of the country, and gives greater power of money distribution to the farmer himself. Now, therefore, let it be understood that the Co-operative movement, if it is to be inaugurated in Rhodesia, has at the very outset as its policy the improvement of the position of the farmer by combination with his fellow-farmers; but at the same time tends in no way to interfere with the legitimate trade interests of those whose property and trade connection is vested in the country. In dealing with a movement like this concerned with the questions of production, distribution and export, the collection of reliable statistics from farmers is of the utmost importance. The Secretary for Agriculture tells me that he has had considerable difficulty in getting data upon which to base calculations with regard to production, or the quantities available for market, taking the country as a whole. I should like to urge this morning that the farmers in the country should recognise the difficulty in which a public department finds itself in dealing with the other Colonies, or with countries over-sea with reference to production and all matters affecting farming if it is not in a position to present reliable statistics of the actual work that is being done. On inquiring into the matter I discovered that this difficulty of giving information to the Agricultural Department arose on account of the feeling that the Agricultural Department as a branch of the Government would use the information in some way or other detrimental to the interests of the farmers. Well, I should like to point out that information of that kind furnished to a Government Department should, as far as the individual furnishing it is concerned, be sacred in character. A head of a department, beyond using such information for the purpose of improving the condition of those who supply it, has absolutely no right, and no gentleman would ever take the liberty of making any other use of it than that for which avowedly he sought and secured the information. Mr. Townsend has pointed out to me the difficulties he has to contend against be-

cause of the fact that he cannot get reliable figures; and I need hardly say, in speaking of him, that he would carry out to the letter the strictest regard for the confidence reposed in him by a farmer in giving him facts with regard to his production. This would not be used for any other purpose whatever except to enable his department to increase its efficiency in dealing with farming as a whole. Therefore, let me ask you in your own interests to assist the Agricultural Department in securing reliable information to enable them to furnish all centres of consumption in South Africa, and all points over-sea, with fairly accurate figures, when the question is asked what may be available for sale or for export. Suppose, for example, as we will come to discuss in a few minutes, your proposed export of mealies scheme were to become an accomplished fact. Let us assume that every farmer had a certain available surplus which could be exported to Great Britain or the Continent. The Secretary for Agriculture would be asked by the Corn Trade Association in London before giving him an Exchange quotation on standardised samples, what quantity Rhodesia would probably send to the market for sale. If he were to write to the Secretary of the Corn Trade Association and say "I regret very much that I cannot give you these figures because I cannot get the data from my farmers," the latter would immediately reply, "We cannot put Rhodesian mealies as such on the Corn Exchange until we know to what extent they can be put into this market." I only give this as one example, but a great variety may be given of the vast importance of placing your Agricultural Department in the position of being in immediate touch with whatever is being done by the farmers throughout the Colony. I do not want, as I said at the beginning, to rush down your throats any "cut and dry" theories that may be applicable to Rhodesian circumstances; but I would take an example of a British Colony practically situated in the same circumstances as Rhodesia, or I should have said situated some years ago in the same position as Rhodesia is now, with a similar climate, and with very similar agricultural conditions, and I should like to give you some idea of the progress that has been made in that Colony in a comparatively few years of organisation, experimental work, judicious State aid, and generally of spreading among the settlers that spirit of

progress which is really the foundation of success in every part of the British Empire. Not so long ago Queensland was only partially explored; there was very little precise knowledge of its immense agricultural probabilities; very limited railway communication; towns just beginning to develop along the coast; and everything pretty much in a haphazard state. On looking into the statistics in their Year Book for 1906-7 one finds that they have at the present time no fewer—that is to say at 31st December, 1906—than over 3,413,919 cattle, 15,000,000 of sheep, and 140,000 pigs. I find that in Queensland during last year they dealt with £733,800 worth of frozen meat; they cured £250,000 worth of bacon in their Bacon Factories, and their total export was £12,511,000. That was divided—and this is extremely interesting to the Rhodesian farmer—as between the Agricultural, Pastoral and Mineral, in this way: The Agricultural exports, that is to say, butter, cheese, and fruit, and so on, two millions and a half; pastoral exports, that is frozen meat, wool, and articles that were entirely derived from the animal industry of the country, was over five millions; and the Mineral export was about three and three-quarter millions. I mention these figures to indicate that in the development of Queensland a certain curious relationship is maintained between the Agricultural and Pastoral productions and the Mineral output. This has a remarkable internal effect in the country in extending agricultural organisation. If you only realise clearly the position which your mineral operations occupy with reference to the development of farming—the fact that each mine in itself is an incentive to a certain measure of agricultural production in its particular locality, and that that measure of production going on steadily ultimately brings about well-regulated market conditions in the country itself, and that this tends further to create a surplus for export—you have in Rhodesia, in relation one to another, influences operating upon the extension of agricultural and pastoral development pretty similar to Queensland; and therefore the problem presents itself whether you are going to proceed on the same lines from an economic point of view.

Coming down to the question of what may be done in Rhodesia itself: We have had already a series of similar meetings to this, and these meetings were designed to enable the farmers of the country, in consultation with

one another, to agree upon such policy as may be found applicable to Rhodesia.

It is clear that the cattle industry here is of paramount importance, and any scheme of agricultural development or organisation which did not make its beginnings with the cattle industry would be of little value to the country. In what way can organisation be applied to the improvement of our cattle? I had the opportunity of visiting some well-managed farms since I came to Rhodesia—farming carried out on what we call in England the mixed system—a certain amount of agricultural, and a certain amount of pastoral work being carried on, and with a great measure of success, these two departments of farming being made inter-dependent one upon the other. In looking into the livestock production side of these farms, I tried to get at the actual experience with reference to improved breeding of cattle. I found that, taking 3 to 4 years as the period of maturity of a beast produced under ordinary circumstances in Rhodesia, and taking the cross between a thoroughbred bull on a selected cow as against the cross on the same cow with a non-descript or badly bred bull, the difference of the one as against the other was £25—that is to say, the well-bred animal if it happened to be a heifer to be sold as a milch cow would realise in Bulawayo £35, whereas the badly bred one would only be worth £10. Let us assume that in the cattle industry of the country there is only a difference of £10 or even £5 between the properly bred animal and that bred indiscriminately. I think it will be apparent that if you could commence the grading-up of your herds by the introduction of properly-bred bulls specially selected with regard to the conditions of your herd and the conditions of your district, and make the beginnings of a herd of animals acclimatised to South African surroundings you would be contributing enormously to the wealth of this Colony.

You should try in suitable districts to have small syndicates of farmers organised for the purpose of purchasing bulls for the improvement and grading-up of their herds. Suppose, for example, that five farmers were to come together and agree that they would purchase two or three or any number of bulls, partly perhaps with a view to experimenting whether one cross with the cow at their disposal would be better for that particular locality than

another; they form what may be called a Livestock Improvement Syndicate. An Instrument of Agreement is drawn up between them that these bulls are to be used under certain conditions. Two of the members are appointed to go down to the Colony, probably have a consultation with some member of the Agricultural Department, visit some of the best herds and select their bulls, bringing these bulls up to their districts, and then using them on the conditions laid down; the most important of which is that there must be selection of the cows carefully carried out in order to lay the foundations of a herd. Of course if a man buys a good bull—let us say he has 50, 60 or 70 cows—I do not suggest that he should merely use the bull on a small select number of these cows—he would certainly, as an intelligent man, mark out a certain number of those cows superior to the others, and take care that the crosses from these would be used as the beginning of a herd on his farm. The Government comes into that scheme in the Cape Colony to this extent: The Government says to the Syndicate, "If you like to carry out the conditions we impose, and which are all entirely in the direction of permanent improvement of the stock, and if you have your animals upon purchase examined by one of our Government Veterinary Surgeons, and if otherwise we are satisfied that the purchases you make are suitable, we are prepared to advance you two-thirds of the cost of these bulls. You have got to put up one-third of the money, and we give you four years to pay the two-thirds back in half-yearly instalments, charging you  $4\frac{1}{2}$  per cent. for the use of the money." It is certainly one of the most important subjects to which this meeting could give its best thought, and to which the whole of the farming community of Rhodesia could give its best thought—how far some such systematic scheme may be adopted of combination amongst yourselves and in co-operation with the Agricultural Department to proceed with the improvement of your stock. The Agricultural Department in Rhodesia has been doing a good deal in the direction by encouraging the improvement of stock, as naturally was part of its functions; it might have done, in my judgment—and I say so to you with all respect—a great deal more if the organised intelligence of the farmers of Rhodesia had been behind it, and if more close contact and more

confidence existed between the officers of the Department and the farmers, so that little difficulties could be smoothed over, and farmers consulted, and thus a more regular and more systematic scheme brought into play. Now that is the first subject on the development of Rhodesia upon which later on you will have to pronounce an opinion.

We come, secondly, to the question of the proposed Co-operative Bacon Factory. I take that next because it is a practical project already in hand; and I was intensely gratified yesterday afternoon to find that the gentlemen interested in its promotion were beyond measure fully sensible to the business side of the scheme. With farmers starting various schemes in South Africa, it is unfortunately very hard to get them to look into the future of any project they may take up from the hard-headed Scotch pounds shillings and pence point of view. Unless they do so the proposal is likely ultimately to be driven on the rocks, and I was very pleased to find that the gentlemen here who are pushing the proposed Bacon Factory were most anxious to examine how far every penny might be safely invested before they undertook the responsibility which naturally devolves upon them. In the Bacon Factory Scheme you have at all events the prospect before you, after some expenditure, of supplying your own local demands. I am bound to point out that to-day in Rhodesia you have what is called an abnormal market, that is to say that taking your prices of agricultural produce sold in your own Colony as against prices obtained in the other South African Colonies, you are undoubtedly receiving a higher return than the farmer in any other Colony. That is due to your geographical position and peculiar circumstances affecting production. You imported during the first nine months of 1907 £8,039 worth of bacon and hams, and that, curiously enough, was an increase of £1,000 on the year 1906: so that, at all events you have this basis to start upon that on the face of the Customs Returns you can produce up to £8,000 worth of bacon and hams and by-products in Salisbury, which if it is on a competitive level with the imported article, would be consumed in the Colony itself. The conditions of success in this Bacon Factory are four-fold. The first is, you must have the right quality of pig, and the right quality of pig is one that would appeal to the intelligence of the farmer living here, and which must

be supplemented with help and advice and encouragement from the Agricultural Department. In seeing something of pig-breeding in Rhodesia, I was particularly struck with the success attending the rearing of the large white York breed. A farmer whom I visited was carrying out pig-breeding to the extent of selling 180 pigs a year—say an average of 15 pigs a month. These pigs sold at an average live weight, at six months' old, of 120 lbs., and the average price for the last year stood at something between  $4\frac{1}{2}$ d. and 5d. per lb. live-weight. In the pig itself, the farmer made a beginning with the middle white York. He found subsequently by purchasing a large white York boar that he got rather a better cross than from the middle white; but still later he discovered that by using the large white York altogether he was getting still quicker maturity for a given weight of animal in a shorter time, and therefore as far as that particular experiment is concerned, there is something to be said for the breeding of the large white York. Now it is not my intention this morning at all to go into questions of a technical character—to deal with the breed of pigs or other animals, that is the work of your Agricultural Department. What I have to place before you to-day is how to make your Bacon Factory a success, and I should start from the point of assuming that you had the pigs; but it is one of the necessary factors upon which you have to depend, and therefore incidentally one I may deal with. Now having got the right quality of pig, you must get regularity of supply. It will not do to send 27 pigs to a Factory one month and four the next month, and probably no pig at all the third month. Unless a Bacon Factory, or any other institution that has to compete with imported produce into South Africa, can organise regularity of supply, it is impossible to effect the objects it has in view. Therefore the farmer must not only breed the right kind of pig, but must get into a system of producing from time to time relays of litters of young pigs. Next to that, the Factory must be of a suitable size, having reference to its requirements, and must be put up at a point convenient to the bulk of the pig growers; and, finally, it must have sufficient capital to enable it to do its work on a commercial basis. Taking the experience of one farmer whom we interviewed, and looking back upon his past five years of pig rearing, he was able to give us these figures; and

these figures very nearly coincide with what I worked out from the other facts he gave me with regard to feeding and sale price. His average weight was 120 lbs. live-weight, and his average selling price  $4\frac{1}{2}$ d.; that meant that he got 45s a pig on the average for his six months' old pigs. He calculates his cost of production per pig as fed upon very largely the offal of the farm, with practically no purchased foods—except a kind of brewer's grain bought from natives; he buys this residue and uses it as a supplemental food. But apart from that there was hardly anything in the shape of purchased foods, and there I may say at once comes in the economy of pig raising. If you can raise a pig on your farm by producing on that farm the whole of the food the animal requires you are dealing with it in a business way, but as soon as you begin to purchase, or as soon as your purchases go outside certain limits, then it is questionable whether pig raising will be profitable. Now the cost of production under the circumstances I have described was 20s. per pig, leaving him 25s. profit for his six months' pig as it was sold, and that 20s. includes not merely the feeding of the pig itself that goes to market, but it covers the feeding of the sows from which these young pigs are produced. At our discussion yesterday afternoon I placed before the Committee certain facts with reference to a factory capable of dealing with 50 pigs a week, and I said that that was the minimum size which could be organised on business lines competent to pay for skilled management which ought to be undertaken. Well, in going into the matter last night, and carefully thinking out what I might say to the promoters of the Bacon Factory this morning, I have come to the conclusion that it would be unwise to limit the capacity and equipment of the Factory to the exact requirements of 50 pigs a week. In equipping your Factory you would have to put in certain machinery—for example, an engine and boiler, and a refrigerating plant. On going into the matter carefully, and having in view that the pig-raising industry will increase, we must provide larger capacity in our Factory as time goes on. The outlay in making additions or replacing machinery will be incomparably greater than providing a little extra expense for better machinery and machinery of larger capacity at the very outset, and therefore instead of taking the Bacon Factory with its minimum of fifty pigs a week, which I dealt with

yesterday, I have taken a Bacon Factory with a capacity of 100 pigs a week, and capable of dealing with up to 200. This will entail a certain measure of extra initial cost, but after all, if the industry is to develop, will be the better investment by those interested. I suggest that the capital of the proposed Factory should be £7,500, and that £5,000 of that sum should be allotted, keeping £2,500 in reserve. The machinery for the kind of factory that I have just mentioned dealing with 100 pigs a week, and having a capacity of dealing with up to 200 pigs a week, can be provided and put on board in London at £1,089. I add to that £327 as the carriage, bringing the total to £1,416. Now that does not include sinking of our pump for getting water, laying pipe connections and so on which I estimate at £350, making a total expenditure for machinery of £1,766. The cost of the buildings, of course, will depend a great deal on local conditions, but let us assume that they can be erected of wood and iron, with the exception of cold storage and the more permanent parts of the building—they need not necessarily be of an elaborate character; at all events let us take the buildings as costing £1,300—that will leave us say £2,000 working capital, bringing up our total to £5,000. Now killing 50 pigs a week as was suggested yesterday afternoon, and taking 100 lbs. dead-weight, it would mean you deal with 250,000 lbs. of pork annually. On talking the matter over last night with some gentlemen, I decided to put the wholesale selling price of that pork at 8d. only having reference to Rhodesian markets, because I am informed that the present price of pork is 1s.: at all events I put it from a factory point of view at 8d.; that means the turnover in a factory dealing with 50 pigs a week will be £8,333. Now your working expenses, inclusive of salaries and wages, fuel, refrigeration, packing, audit of accounts, office expenses, depreciation, insurance, taxes, interest on capital, sundry expenditure, and the salary of the Secretary, will work out at £2,037, leaving, say, £6,296 as the price of our pork net in the factory. That will give us 6d. a lb. available for the farmer: but I think it necessary to take off a percentage for bad debts, and a percentage to create a Reserve Fund for contingencies, which would mean that we were reducing our 6d. practically to 5d. so that our factory would probably be in the position of paying—including the two

payments, the payment at the time of delivery and the proportion of bonus or dividend which afterwards went to the farmer—would be in a position to pay 5d. per lb.; in other words, if you paid the farmer 4d. at the time of delivery, you would probably be in a position to pay a further penny as a bonus. Now that is the position as far as I can estimate with regard to the factory.

This afternoon I hope to meet the Committee of the Bacon Factory again and go more fully into the details of these figures, having regard to the cost of things here, and probably we can decide upon the text of our Memorandum and Articles of Association and the general features of the scheme as it may be undertaken, and therefore having said that much I shall leave it.

The third subject that I propose to speak about is the Maize industry. At the last meeting of your Agricultural Union a scheme was submitted to deal with the disposal of maize or mealies. The scheme roughly proposed that there was to be transport during the slack season, that mealies were to be stored to be sold when the prices were high, that advances of 50 per cent. would be made against stored grain, that what is called fair prices were to be maintained, middleman's profits were to be obviated, that large stocks were to be held from time to time, and the farmer was to be kept free of the speculator, and finally deal with the surplus. In order to give effect to that the Union recommended the introduction of the Coupon System—through the Banks, of course—of dealing with advances on mealies put into store: they suggested a binding agreement to supply; they suggested a scheme whereby the farmer would be free to put reserve prices upon the produce, and suggested sheds and offices and so on. I am bound to say at once that having regard to my short experience in this country, and my discussions with the farmers whom I have met, I see very serious difficulties in the organisation of this scheme. First of all, I do not know whether the Agricultural Union has ascertained from the Banks whether they are prepared to adopt the "Coupon System" in Rhodesia; secondly, I do not know whether this system of carting your corn over long distances in the slack season and put into store is one that the ordinary farmer in Rhodesia is willing to accept at involved risk; and thirdly, I do not know whether he can wait for his money until such time as the advance

can be negotiated, and whether he is at the moment prepared to accept 50 per cent. as a sufficient advance. As far as I can gather, a great many farmers are living from "hand to mouth," and therefore it is a matter for careful thought whether you are in a position to deal with the disposal of mealies in the way suggested. But the most serious feature of the scheme to which I want to direct your attention is this, that it is bound to be interpreted, whatever you may say to the contrary, as an effort on the part of the Rhodesian farmer to create a Trust in his produce. I have no objection to the farmer creating a Trust; but unless a Trust is on sound commercial lines its chances of success are very remote; and whatever you do in creating a Trust, your produce is bound to be governed by market conditions dependent on the cost of the imported article. The point about the scheme that commends itself is this, that if the farmers were organised as suggested, and they had large quantities of mealies and bound themselves to supply according to the regulations of the Syndicate or Association, that large contracts extending over long periods of the year might be made with the Mining Companies and others who consume large quantities of mealies; but I think you can work out some plan for the delivery and supplies besides taking the risk of putting up, as is suggested, central stores with office accommodation with the payment of some officer who must take the responsibility of dealing with the produce, and providing machinery to deal with the weevil. I have thought carefully about this suggested mealie scheme for Rhodesia, and while I do not want to throw cold water on it, I am afraid after my two and a half years' experience in the Cape Colony, that we have not yet got to that stage with the Rhodesian farmer where he is prepared to accept in its entirety the conditions upon which that scheme could succeed. It involves a good deal of risk. It involves the possibility of being interpreted as undue interference with the development of the country by trying to fix the prices of certain produce. In this world to-day you cannot fix the price of produce. It absolutely will depend on the markets outside, and therefore while there is a good deal in the scheme that might be useful—and of course it is entirely impossible if the Banking institutions are not prepared to come to your assistance—still I think that a considerable modifi-

cation would be found necessary before the scheme could be worked.

Now in dealing with the mealies question, most of the Governments in South Africa are carrying out expert schemes for disposal of the surplus. I should always like, in talking to farmers, to make it perfectly clear that we should only export a feeding stuff of any kind out of a Colony when we cannot convert it to economic use in the Colony itself. I do not think that any farmer in Rhodesia should lend himself to the export of mealies or anything he produces on his farm until he is satisfied that it would not bring a better profit if it were to be fed to an animal on that farm and turned into milk or meat. Owing to the want of capital some of our farmers have a tendency to sell off the first product that presents itself, and they very often have to buy back again on unfortunate terms of credit a feeding stuff which was sold in a moment of thoughtlessness. The scheme for export, assuming there is a surplus and assuming it is the best way to dispose of it, is worked in this way:—

Your Agricultural Department will have to collect from your farmers estimates of the available surplus; a Mealies Grader—an Officer for the purpose of grading mealies for export—will be appointed at your nearest Port; as soon as possible after the harvest, the Agricultural Department, or the Farmers' Association, will have to collect standardised samples of your maize, that is to say you have got to divide your maize into whites and yellows, and these again into flats and rounds, and these will be divided into grades. Standardised samples of these grades will be kept here at the Agricultural Department, or some other official body, duplicates will be sent down to the ports to your official grader, and others sent to London to the representative of your Government in order to be placed before the Corn Trade Association. Then these standardised samples will be regarded as the basis for estimating the selling prices of Rhodesian mealies for export. Your quotations and your cables from London will always have reference to these samples. As your mealies go down to the Port your grader will stencil your sacks with the grade in which he places the consignments, and every consignor will receive an official notification from him certifying the grade in which his

mealies have been placed. Now the Natal Government and the Transvaal Government are carrying out that scheme by doing the entire work for the farmer, that is to say they not merely make a through rate over the railways to the Port of London covering the Harbour Board charges and covering the over-sea freight, but they take charge of the mealies in London, put them on the Corn Exchange and remit the payments to the South African farmer through the Government banking institution of their Colony. For instance, for Natal the mealies are sold in London at the expense of the Natal Government, and immediately they are sold a cable is sent to the South African branch of the Natal Bank and the difference between what the farmer was advanced in the first instance and what his mealies realised is paid out to him.

In the Cape Colony we do not propose to interfere with legitimate channels of trade. If a farmer at Vereeniging, for instance, wishes to send a consignment of mealies to London he can book these mealies through to London at Vereeniging Station, and the charges will be about £1, and that £1 will cover haulage of the mealies down to the Port of East London or Port Elizabeth; the charges due to the Harbour Board there, and the over-sea freight to London, that is to say, with the through rates now being made by these Governments the total charge to place the mealies in ship's slings in London is, in the maximum, 20s. per ton. The Cape Government will not interfere with the sale of the mealies; we will put the mealies in the ship's slings at London at this through rate, but the actual selling must be carried out by one of the merchants whose legitimate business it is to do that work. Well, on the whole, from a business point of view, I think it is sounder to support the merchant in the country, whose interest it is to do the best he can for your produce. You have your cables, you know your prices, and you are simply paying your merchant the brokerage and commission in dealing with the mealies you export. However, as this is a matter for your Government and Railway Company, it will have to be worked out more fully later between all the parties interested.

The next subject is that of Co-operative Purchase. Farmers ought to have at their disposal the best possible facilities for getting their seeds, fertilisers, agricultural machinery and other requirements. In South Africa I

I am sorry to say it is sometimes the case that the farmer does not get his requirements in the best way possible, and he sometimes has to get long terms of credit. By combining among yourselves, by starting small societies on the Syndicate principle, as I think it should be in Rhodesia rather than on the principle of Limited Liability, you ought to be able through your local merchants to get the benefit of wholesale prices in the purchase of your requirements. I do not want you to go beyond your local merchants. You go to them and say, "We have a combination of farmers working in Rhodesia, we shall require £1,000 worth of materials, we give you that order in bulk; we must get a guarantee of the quality, we are prepared to deal with you as an institution in the country and not as individuals, but we who have to produce must get our articles at the lowest possible price. It seems to me that little societies of that kind could easily be established in those districts where Land Settlement is being organised. Where new men are coming in they can easily form groups of five or six or seven or any number available; and let them agree on their *joint and several liability* to be responsible for the purchase of their supplies. With your traders, by paying a nominal rate for the money or through a bank, they ought to be able to get their supplies on better terms than at present. In the Cape Colony we have Agreements of this kind for such Syndicates as I have been talking about, of which the following is a sample:—

..... CO-OPERATIVE  
FARMING SYNDICATE.

MEMORANDUM OF AGREEMENT entered into this.....  
day of ..... 190... between  
..... of .....  
..... of .....  
..... of .....  
..... of .....  
..... of .....  
..... of .....  
..... of .....  
farmers in the district of ..... hereinafter  
referred to as the Syndicate.

It is mutually agreed as follows :—

1. To organise and establish in the said district of .....a Co-operative Syndicate composed of *bona-fide* farmers comprising those whose names are affixed hereto, and such others whose admission may hereafter be approved of for any or all of the following purposes :—

- (a) The negotiation of loans and advances from Government or any other body or institution whatever, such loans to be applied for development purposes on the farms of the members of the said Syndicate.
- (b) To purchase on behalf of the members of the said Syndicate farm requirements of all kinds, including seeds, fertilisers, agricultural machinery, fencing material, irrigation machinery and equipment, and such other articles and things as may be approved of by a majority of two-thirds of the members of the Syndicate.
- (c) To make such arrangements as may be deemed advisable for the sale of all kinds of agricultural produce.
- (d) The erection and maintenance of depots, stores, offices or any other buildings, or the lease and hire of such buildings for the joint use of the members of the Syndicate.
- (e) To arrange for the establishment of market agencies either in local or over-sea markets for the disposal of produce in bulk or otherwise, and to devise schemes for the more convenient transit and sale of farm produce.
- (f) The purchase for the use of members approved stud stock under such regulations as may be approved of by a two-thirds majority of such members with the approval of the Agricultural Department.
- (g) To carry on any other work of development incidental to the improvement of farming in the .....district.

2. All loans or advances negotiated by the Syndicate shall be secured upon the joint and several promissory note binding the members of the Syndicate jointly and severally and *in solidum* for the discharge of such lia-

bilities as may be incurred in any manner whatsoever at such rate of interest as may be arranged between the Government bankers, merchants or others of the Syndicate.

3. To appoint from said members such number not exceeding.....to act as a Board of Management for the Syndicate for the period of twelve months next ensuing upon the date of this Agreement. At the end of such period of twelve months to continue such Board of Management by the re-election of existing members or otherwise, and so continue from year to year.

4. To appoint from time to time a member of the Board of Management to be Chairman and another member to be Secretary and Treasurer (hereinafter referred to as the Secretary), and to open an office at.....

5. The Syndicate to be styled the.....  
Co-operative Farming Syndicate.

6. To co-operate for all the aforesaid purposes in such manner as the Board of Management may decide subject in all cases where the liability of the members of the Syndicate is involved to the approval of a two-thirds majority of the members of the Syndicate duly convened in special general meeting upon not less than 14 days' notice.

7. To open an account at .....  
Bank in the name of the Chairman and Secretary on behalf of the Syndicate.

8. To pay all moneys received or contributed into such account.

9. To cause to be kept proper accounts and books, which shall always be open to the inspection of any member, and cause to be framed on the.....day of..... of every year, or as soon as possible thereafter, a general balance statement of the assets and liabilities, such statement to be signed by all the members of the Board of Management.

10. All cheques to be signed by the Chairman and Secretary for the time being of the Board of Management.

11. The Board of Management to have power to charge such commission upon purchases and sales of all commodities dealt with on behalf of its members as may be necessary to cover the working expenses of Syndicate.

12. Ordinary General Meetings of the Syndicate to take place at least twice annually for the transaction of such business as may be necessary, but more particularly to consider audited statements of receipts and expenditure.

13. The Board of Management shall arrange terms of credit with individual members, and shall demand such further security as they may deem necessary.

14. The Board of Management may employ such persons as may be necessary to give full effect to the purposes of the Syndicate, and arrange the remuneration of such employés.

15. In the event of loans being received from Government the accounts of the Syndicate shall be subject to the inspection of the Auditor-General, and all transactions involving the credit of the Syndicate must be approved of by the Treasurer of the Colony.

WITNESSES :

SIGNATURES :

Now it seems to me that for purchase purposes these little syndicates could come into operation and could do a great deal of useful work. You must understand, with regard to Syndicates for purchase; that in these the Government can give no financial assistance at all; they can only assist you to the extent of testing your seeds as we do in the Cape Department, or give you an opinion on a fertiliser, or analyse your fertilisers or your feeding stuffs; but no advance of money can be made by Government to a body that *ipso facto* carries on trade. The free trade policy of the old Manchester school is as strong in our Colony as it is at home, and Government cannot lend money to anybody that is directly carrying on trade; but with syndicates for the erection of fencing, water-boring, windmills, and so forth where farmers are prepared jointly and severally to come together and put up one-third of the total cost of the scheme, the Cape Government advances the remaining two-thirds. The advance is made at  $4\frac{1}{2}$  per cent., and it is repayable in instalments. For fencing we give them ten years in which to repay. We do it in two ways—if the Civil Commissioner of the district, or my Inspector, certifies

that one-third of the fence has actually been erected, substantial in character, we advance the two-thirds on the joint and several Promissory Note of the Syndicate, taking the one-third erected as their contribution, otherwise they have got to put up one-third of the money.

It is a matter entirely for you as to how far that sort of scheme will be applicable here, but I am bound to tell you that it is working exceedingly well in the Cape Colony. Farmers who paid abnormal prices for water-boring, for instance, now form little syndicates, buy their own drill, the Public Works Department gives them the subsidy for boring direct to themselves, and they save the large sum of money they were paying to the Boring Contractor.

The next branch of organisation that I desire to discuss is the dairying industry. You imported into Southern Rhodesia in the first nine months of last year £9,569 worth of butter and £3,185 worth of cheese, and each of these have increased £1,000 in the corresponding period of the previous year; of condensed milk £8,000 has been imported, so that in Rhodesia, with its hundreds of thousands of miles of territory, you have to find dairy products to the tune of £22,000 in nine months.

With reference to dairying, and after consultation with the Committee of gentlemen who met me yesterday, I can only strongly urge the encouragement of the cheese industry. I do not think that you are in a position yet to rely very much on the making of butter. Your farms are so far apart; you have difficulty of transport; and the necessary conditions of freshness, even temperatures, and so on governing the butter, milk and cream trades are so difficult that there is not much hope at present of adequately organising the butter industry.

But with cheese, which a man can make with a small plant on his farm, the position is entirely different. Taking the South African cheese industry as it stands, we could supply up to the last pound of our total requirements if we had the article. The Cape consumer having once tasted our South African cheese is willing to pay 2d. a lb. more for it than the best imported. Colonial cheese made in Griqualand East and sent round by boat from Durban to Cape Town is sold wholesale at 10½d per lb. Canadian imported can be landed in Cape Town at 8½d., and yet everybody wants Colonial cheese. The cheese industry commends itself in Rhodesia for three reasons. First,

the making of cheese is comparatively simple; secondly, you can put up a maturing room for cheese quite sufficiently good to make very good cheese at a nominal cost; whereas without cold storage butter on a large scale you cannot deal with in a climate like this. Cheese you can always sell. Your own import is £3,185 worth, and once you make a start you can continue what will undoubtedly be a very good trade. Now a good many farmers tell me they have a large flush of milk at a certain time of the year, and then, when the dry season comes along, none at all. If we could convert that milk which to some extent goes to waste, into cheese, it would undoubtedly be using it in the best possible way. Suppose your cheese is sold now in Rhodesia—and imported cheeses are sold at 1s. 4d. to 1s. 6d. a lb., I understand—at 1s. per lb. it would mean you were getting 1s. for every gallon of milk. It takes  $2\frac{1}{2}$  gallons of milk, sometimes more, to produce a lb. of butter, and the price of butter at present is 2s., I think, so that by making cheese in the direct money result, except that you have to wait a longer time for your money, you are making a larger profit. On your farm you can use the whey from your cheese for pig feeding. But if you are going in for grading your herds whey is no use; skim milk would be preferable. Now, cheese-making cannot be commenced without technical assistance. You must get itinerant instruction in the making of cheese, and it is a question for you to consider whether a dairy expert should go from farm to farm and look at the conditions of your herds, and following upon such visit lay the foundations of profitable cheese manufacture.

In this Colony the question of capital for the farmer is perhaps the biggest one with which he has to deal. The need for capital for the settler and for the struggling farmer upon the land is undoubtedly of paramount importance. I believe that if a scheme were inaugurated in the Colony by which the provision of cheap capital for the development of farming could be established that everything else we have been discussing would follow in the natural order. I was trying, with the assistance of Mr. Townsend, to get at the farmer's own estimate of the minimum capital required in dealing with what we might call the orthodox 1,500 morgen farm in Mashonaland, and from what I can gather it is estimated that a

man cannot safely start a farm of that area and turn it to anything like adequate economic use with a smaller sum than £1,000. Now, I went into this question with the most intelligent men that I met. I asked them what the present condition of their farm was—that is to say, what stock it was carrying, and what amount of tillage was being undertaken. Having received this information, I said, “suppose now by any means you could be provided with a small amount of capital at a fair rate of interest and on terms of repayment that would be equitable, what more could you do with the farm?” These men promptly pointed out the further extent to which they could clear land, the further number of cattle they could put on their holdings, and they were easily able to calculate what the increased profit might be.

In the Cape Colony and in the Transvaal, as you are aware, the Governments by Act of Parliament have established what are called Agricultural Banks, that is to say they have established institutions which upon first mortgage security on real property are prepared for improvement and development purposes to advance sums of money to farmers at 5 per cent. The security is a first mortgage on the property; but both the Governments have recognised this fact that a mortgage may exist already, and that upon that mortgage the farmer be paying an abnormal interest. They both have agreed, and have given through their Acts to the Agricultural Banks the power to pay off mortgages in those cases where it can be proved that further capital can be applied on sound economic principles to increase the permanent value of land. If a man with a mortgage of £1,000 came to the Agricultural Bank Board and proved to them that he could by getting £2,000 pay off the £1,000 and put the additional £1,000 into fencing, clearing of land, irrigation or any other project which would tend to increase the value of his holding, the Board would be bound, under the conditions of the Act, to consider that man's application. I make no suggestions whatever, because I am speaking with all deference in the presence of the heads of the Government here, but I wish to emphasise that in talking of Queensland and the other Australian Colonies and Tasmania and New Zealand, and looking back at the multiplication of their export and the rapid development of their wealth during the past

fifteen years, you find the secret of it in the provision of cheap capital for the farmer for permanent improvement purposes in these Agricultural Banks.

Having said that much, and having emphasised what I am sure will appeal to everybody here that capital administered on judicious lines must be part of the functions of rapid agricultural development in Rhodesia, I leave it for you to decide how to treat the matter.

I also wish to speak about Fruit and Tobacco. We found in the Cape last year that the export of Citrus fruits was likely to become one of our profit-making industries. Under our Government Experimental Export Scheme we sent quantities of citrus fruits from Port Elizabeth, and we sent a certain quantity also from the Western Province. Well, prices varied a good deal, but in every case they were better than anything that could be realised in the Cape, and in some cases from the Eastern Province especially we got as much as 15s. 9d. a hundred for oranges.

I am told that the citrus industry is peculiarly adapted to your soil and your climate, and even if you were to sell at a smaller price than we get for some of our Cape stuff there still would be, I think, a very large market for citrus fruits, which undoubtedly can be produced cheaply. With this particular fruit the position of the market is entirely in your favour. You would just be in a position to put large quantities of citrus fruits into the English markets when the supply from Southern Europe and elsewhere had entirely fallen off.

I ought to say, perhaps, that in dealing with the over-sea and British markets I am perfectly certain that my Government would be prepared to give this Government every assistance in its power through our Trades Commissioner in London, or my Commercial Branch in Cape Town in getting every information we have at our disposal. After all, we must try to help one another, and if there is anything that can be done by the Cape Government to facilitate the work of the Rhodesian farmer, we shall, I am confident, be only too willing to help.

With regard to Tobacco, one word! At the South African Exhibition in London two years ago I had the privilege of going over the Tobacco exhibits with half-a-dozen perhaps of the leading men in the trade in England. These gentlemen took the most extraordinary interest in

Rhodesian tobacco, and all said to me, "This is something that can be developed practically to an illimitable extent; there is an enormous possibility for an article of that sort, and we are surprised that the Rhodesian farmer has not organised himself more systematically and energetically in this tobacco trade." Well, the country is only a few years old; you cannot expect farming to develop as rapidly as in older countries; but in your tobacco industry in Rhodesia, with more organised intelligence, with more appreciation of experimental work, and more generous support to the schemes the Government have established, you can go a long way in building up this industry. I know there are difficulties, there are pests and locusts and other troubles, but at all events there is the patent fact acknowledged in the tobacco market of the world that Rhodesian tobacco is an article having high qualities peculiarly its own.

Every pound of energy in the country should be put into taking advantage of the possibilities of an industry with such an outlook, with an established character, which must ultimately grow into a huge source of wealth. Suppose for a moment that in any new part of America settlers were to discover that their soil and climate could produce tobacco of the high quality we get from Rhodesia, what would be the result? You would have the Agricultural Department of that State, you would have every institution interested in the development of that great country placed at the service of settlers, urging them forward to make their production as intensified as possible. Now, gentlemen, why cannot the same thing be accomplished in South Africa? We are quite as good people, and come from the same good old stock. Why should not we "put our backs" into building up as other nations have done in theirs the fortunes of this country? Every man I meet in Rhodesia says, "I come from the Cape, Natal, or the Transvaal, but I would not go back." If it is worth your while to live here and raise yourself to the highest standard of productive efficiency and human comfort then every scheme that can be created by the best intelligence amongst you ought to be taken immediate advantage of. I am very sorry having taken up so much of your time, but in a subject of this kind one has to cover a good deal of ground. I am only here for a short time. I am very much interested in this country, by whose

people I have been so kindly treated, and I am decidedly anxious that some permanent mark should be made to-day in the inauguration of a sensible and practicable scheme of agricultural development, the result of which, it is to be earnestly hoped, will go far in the transformation of the social and industrial life of this great British Colony.

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## **Tobacco.**

BY G. M. ODLUM.

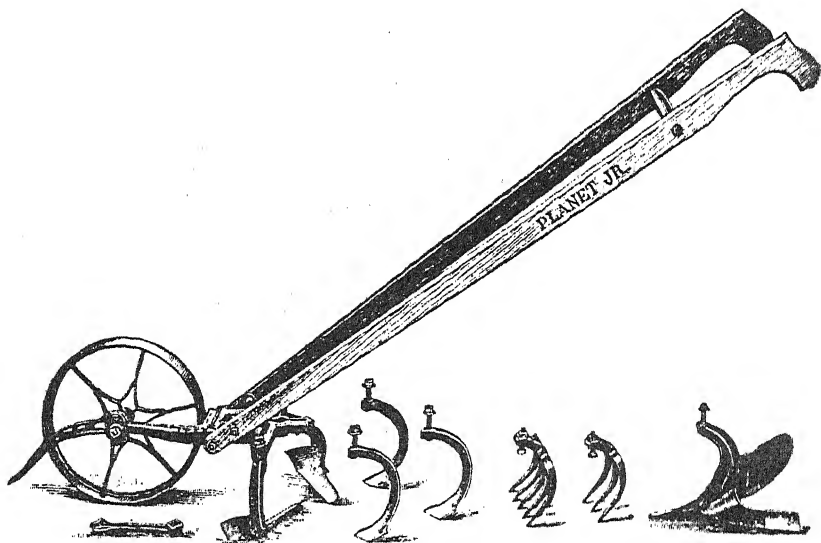
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[Owing to the large demand for the Journal in which the following article by Mr. Odium appeared, and in consequence of the supply being exhausted, it has been thought advisable to reprint it for the benefit of those who may still require a copy.—EDITOR.]

Turkish tobacco culture is one of the established industries of the Bulawayo District, and the names of some of the growers there are well known throughout the country. Some of the more recent beginners are making rapid progress, and the fifteen acre field of Mr. Bains is a sight worth seeing. Mr. Pevsner, of Glenville Farm, has a nine acre field of almost perfect growth, and is rapidly clearing land for his next season's crop. Mr. Leary, of Lochard, has fourteen acres of American, and three of Turkish tobacco, and with the aid of his new flue-curing barn, should make an excellent showing, both on the market and at the Agricultural Shows. Mr. Rayner, of Plumtree, whose tobacco secured for him so fancy a price last season, is this year devoting the same painstaking care to his crop, and Messrs. Barker Bros. have a much larger crop than ever before. The extensive experiments being conducted by the Mashonaland Agency, at Lochard, the Rhodesia Consolidated at Hyde Park, the Bulawayo Syndicate at Umguzan, the Charterland Goldfields at Helenvale, and many farmers throughout the district, are all of interest, and point to a rapid extension of the industry as soon as the experimental period is followed by that of commercial expansion.

Tobacco growers no longer dispute the feasibility of covering plant beds, for some protection has been proved to be essential to the certain growth of insect-

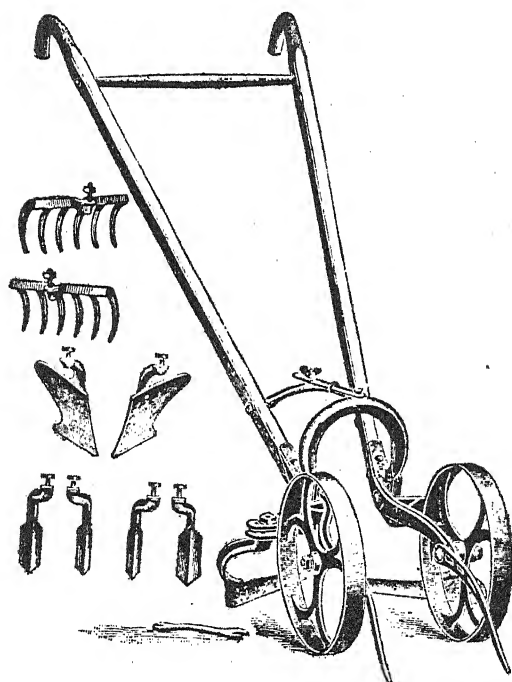
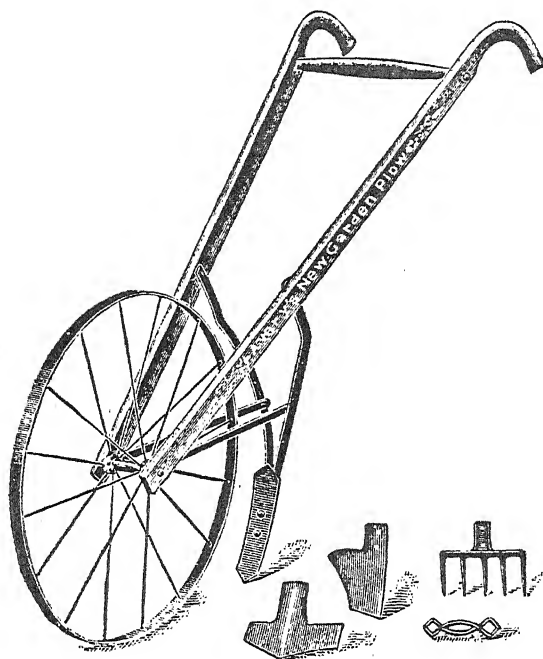
free plants. The unsatisfactory growth complained of by some has been the result of too heavy a covering. Heavy calico does not admit sufficient air, and the plants are consequently tender and not easily transplanted. The cloth used as covering in other countries has a wide mesh, and while it keeps out insects and affords some protection from extremes of temperature, the plants are much hardier than those grown under heavier calico. Forty thousand yards of this cloth have been ordered for Rhodesian tobacco growers, and it is thought that the landed cost will be about 2d. a yard. Planters should estimate their requirements as soon as possible, and any order sent to



No. 16 Planet Jr. Single Wheel Hoe, Cultivator, Rake and Plough

this office will be transmitted to the proper source. It will no doubt be difficult to supply those ordering late in the season.

The close planting so necessary for Turkish tobacco does not permit of horse-hoeing, but there are several types of hand cultivators that are useful for this work. These cultivators, with the plough attachment, may be used for opening of planting furrows, and will be found to greatly accelerate that operation. Turkish tobacco growers should instruct some merchant to order these implements before the commencement of the next planting season. See illustrations.



Useful Implements for the Planting and Cultivation of Turkish Tobacco.

Many lands that will grow tobacco of the best quality are not sufficiently fertile to produce a profitable crop, and manuring becomes a necessity. One of the best ways of preparing tobacco land is to plough under a crop of Kafir beans the previous season. A top dressing of wood ash may be added to this at planting time. If cattle manure is to be used it should be applied the previous season on the maize crop.

We have been experimenting with special tobacco manures, and while it is too early to give results from the financial standpoint, we feel satisfied that it will pay every grower of bright or Turkish tobacco to use it on their crop. This manure can be landed at Salisbury for about £22 a ton, but inasmuch as it has twice the manurial value of ordinary fertilisers, and is free from elements injurious to tobacco, it is cheaper than a manure selling for a less price. This price brings the cost of manuring tobacco to from £3 to £5 an acre, depending on the amount used, which is less than the value of a hundred pounds of good tobacco. In connection with green manuring and the use of wood ash, much less of this manure may be used. When the tobacco now being grown with the aid of artificial manure has been cured and sold to manufacturers, a detailed statement of its advantages will be submitted, but we mention the matter now because the next season will be far advanced before the experiment is complete, and orders have to be sent for manure at an early date.

The effect of this manure on the seed beds would, if described, read like a patent medicine advertisement. It grows the plant in half the time required in the ordinary beds, and the plants, unlike those grown with nitrate of soda, are strong and sturdy, with considerable root development.

Our chief idea in testing the manure is to endeavour to improve the quality of the leaf, which we think that it will do, but if it does not, the increase in quantity alone is sufficient to justify its use. The manure being tested by us is mentioned in our advertising columns, but there are other tobacco manures of similar character which would probably be as effective.

Now is the time to plan the work for next year. Tobacco will grow on raw new land, but it does not

give a satisfactory return from standpoint of yield or quality ; therefore if your land is still raw veld, break it up at once and give it an opportunity to aerate. If you require buildings, erect them during the winter months when you have time, and cheap labour is available. Order your seed, plant bed coverings, fertilisers, and baling presses, at an early date and before you are in the midst of the next busy season, secure your twine, needles, curing sticks, and harvesting baskets. Procrastination is one of the strong points of Rhodesian tobacco growers.

The beginner usually makes the mistake of attempting too much. A year or two is required before sufficient experience is acquired to justify the planting of large fields.

The cost of flue-curing barns need not be excessive if the farmer or his assistant does the work, but a builder or contractor expects to make a good profit, and the tenders are often enough to frighten a man out of the tobacco business. It may interest growers to know that the sixteen foot flue-curing barn erected by Rev. Leary, of Lochard, cost but £40. In this case the white man's time (he was also engaged in the regular farm work) was not charged, but all of the iron, timber, racks, flues, and labour of natives is provided for at cost price.

The plan shown in this Journal of flue-curing barns and packing house is for the very best type of building, and the material is of the best throughout. This building will last a lifetime, but many growers will prefer a less durable and cheaper building, and can modify the plans accordingly.

The following schedule of work has been prepared by the Public Works Department.

## FLUE-CURING BARNS AND PACKING HOUSES.

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### SCHEDULE OF WORK.

Clear the site of all rubbish and leave level.

Dig the trenches for foundations 3' 6" wide and 2' deep, or to such further depth as may be required to obtain a solid and level bottom.

The sides of the trenches should be dug square.

Three to one mortar (cement or lime) is three of sand to one of lime or cement.

Build the foundations with the best stone procurable locally, in hammer dressed rubble set and bedded in 3 to 1 lime mortar, all well-bonded, and having no straight joints; no stones to have round faces, and no small stones to be used except where absolutely necessary for bringing surface up to true level.

Foundations to be 2' wide by depth required by solid bottom, and to finish not less than 3' above ground level. Flush up on completion, and well ram the earth to foundations.

On top of finished foundations lay a damp and ant-proof course of 2 to 1 cement mortar 1" thick, laid truly level, and to be given two coats of Stockholm tar laid on hot.

In every yard of face work there must be at least one through stone and at all corners.

Build the walls with good hard, well-burnt bricks, well-bonded, set and bedded in 2 to 1 lime mortar, all joints truly vertical and horizontal, every course well flushed up, and all bricks well wetted immediately before being put into the work. No half-bricks to be used except where legitimately required for closures, all joints to be struck as the work proceeds. All crevices to be filled in. The bricks for the surface arch, and the door and window arches must be rubbed down, and the latter arches must have a skewback of not less than  $4\frac{1}{2}$ ". All arches exceeding 3' in width to have  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " camber bars. Build in all door, window and ventilating frames, all secured with hoop iron.

Build in hoop iron at all angles and every 6' up in the brickwork to give bond, also for tying down roof timbers.

In a double barn the dividing wall must be carried up in a similar manner to gable ends. Do all beam filling.

Put a 3 to 1 cement mortar weathering to top of foundations.

The floor of packing house is to be formed with good hard bricks set and grouted with fine sand.

Construct the roof with wall plates and principals  $4\frac{1}{2}" \times 1\frac{1}{2}"$ , the latter strongly nailed and clinched, the wall plates tied down and clinched, the wall plates tied down with hoop iron and principals strongly spiked to wall plates. Hoop iron may also tie round the bottom purlin. Purlins to be  $3" \times 2\frac{1}{4}"$ , strongly spiked to principals.

There must be four principals to a single barn.

The lean-to roof to have rafters  $6" \times 1\frac{1}{2}"$  spaced not more than 4' apart, upper ends built into wall. Wall plates  $4\frac{1}{2}" \times 1\frac{1}{2}"$ , purlins  $3" \times 2\frac{1}{4}"$ , all nailed and spiked where required as above specified.

Cover the roof with 24 gauze galvanised corrugated iron, free from corrosion or other defects. Iron to have a vertical lap on one and a half corrugations, and a horizontal lap of not less than 9", to be secured to purlins with g.i. screws and g.i. and lead washers. Iron to fit close at ridge and against wall of lean-to roof. Cover the ridge with 18" g.i. ridging fixed as specified to iron, and beaten down into corrugations of iron.

Put  $6" \times \frac{7}{8}"$  fascias fixed to ends of principals and  $6" \times \frac{7}{8}"$  large boards fixed to ends of purlins.

Put to the eaves  $4\frac{1}{2}"$  o.g., g.i. guttering fixed to fascias with proper bolts and tubes well soldered at joints. Put  $3\frac{1}{2}"$  diameter g.i. down spouts where marked R.W.P. on plan supplied with proper bands and shoes. Put 10" flashing (No. 10 sheet zinc) along back of packing house roof, turned in to chase in brickwork and well wedged, flashing to be beaten into corrugations of iron. The frame for gable ventilators to be cut out of  $3" \times 2\frac{1}{2}"$ , rebated, with bevelled cill, securely built in. The door of ventilator to be 2' square of flooring well battened, and to be hung at top with two 12" T hinges, supplied with pulley and cord to open outwards.

The floor level ventilators to be of the "Rabbit Hutch" type, 14" square.

The doors to barns to be 7' x 3', made of flooring, battened with flooring battens screwed to doors, doors to be hung in two halves, each half hung with two 18" T hinges, frames  $4\frac{1}{2}" \times 3"$  rebated, with bevelled cill.

Doors to packing house to be of similar construction, hung as double doors with two 24" T hinges to each leaf.

Windows to be 12 light 12" x 14" American stock, supplied with furniture, etc., all complete.

All woodwork should be well painted over with carbolineum before being put into the work (this includes doors and windows).

### QUANTITY OF MATERIALS REQUIRED.

Bricks for single barn ...	...	...	...	...	25,000
" double barn ...	...	...	...	...	42,000
" packing house ...	...	...	...	...	8,500
Iron for single barn, 20 sheets of 11' and screws and washers.					
" double barn, 40	"	11'		"	"
" packing house, 10	"	10'		"	"
	10	"	11'		"

#### Timber, single barn.

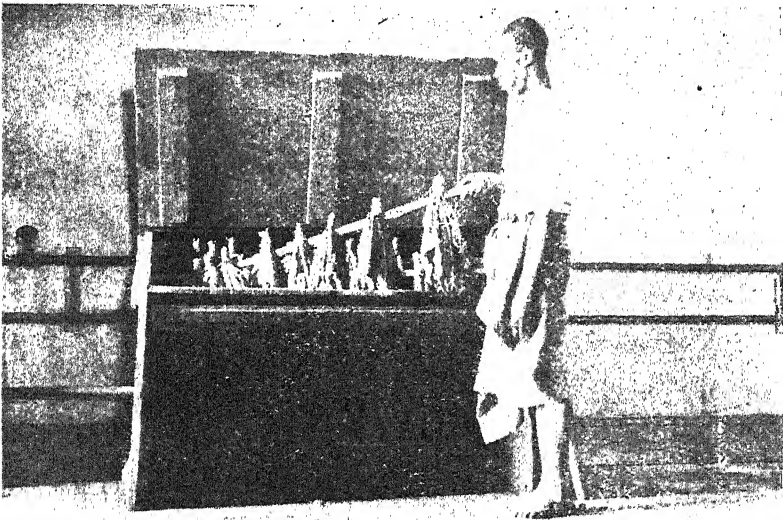
Wall plates ...	...	...	2 of 18' 6"	} 4½" x 1½"	flooring
Principals ...	...	...	4 " 57' 0"		
Purlins ...	...	...	6 " 18' 6"		
Fascias ...	...	...	2 " 18' 6"		
Barge boards ...	...	...	4 " 11' 0"	6" x ½"	
Door ...	...	...	54' 6"	6" x ½"	
Door frame ...	...	...	18' 4½"	3" x 3"	
Vent, door frame (1 only) ...	...	...	10' 3"	3" x 2½"	
" " ...	...	...	14' 6"	6" x ½"	ceiling

#### Timber, double barn.

Wall plates, double single barn.	
Principals, " "	
Purlins, " "	
Fascias, " "	
Barge boards, same as single barn.	
Door, double single barn.	
Door frame, double single barn.	
Vent, door frame, double single barn.	
" " " "	

In the case of the double barn, there being but one ventilator in the end of each half, another must be provided in the roof at the inner side of each barn; this may be done by extending a short section of flue pipe through the roof at that point and covering the lower end of it with a light door held in position by a balancing weight and opened by a rope from the floor of the barn.

In a barn sixteen feet square, the flues enter the barn for a distance of sixteen feet, then cross for a distance of nine feet between elbows, then turn and run out, which requires another twelve feet. The flues should be continued up the outside of the barn for a distance of from nine to twelve feet. Flues of from 12 to 15 inches in diameter are the best size, the smaller size being more easily obtained in the country. The first twelve feet of the flue is subjected to high temperatures and should be of 13 to 15 gauge iron; the remainder of the piping may be rolled from 18 gauge black iron. A set of flues of this description were recently made for £7 10s.



Home-made Steaming Chest for grading Tobacco.

### PACKING HOUSES.

Every tobacco grower should, in addition to his barns, have a room for the grading and packing of tobacco. There are three essential features in a good packing house. It should be well lighted; it should be so tight that the moisture conditions can be regulated regardless of weather conditions; and it should be supplied with steam from a near-by boiler. If it is

near the curing barns the same boiler that is used for the conditioning of the leaf in the curing barn can be utilised. We have described a local made boiler in an earlier issue ; the price of such a boiler is £10.

The conditioning of leaf for packing or grading is done in a small chest. This chest should be 4 feet 9 inches long, and from  $2\frac{1}{2}$  to 3 feet wide at the top. Steam is admitted at the bottom of the chest through a perforated pipe. Just above the pipe there should be a layer of closely-fitting curing sticks sufficient to spread the steam, and at the same time prevent the tobacco leaves from coming in contact with the pipe. Near each end of the chest a cross piece is put in, and the curing sticks with the hands of tobacco are hung on these. The lid is closed and the steam cock opened for a few seconds. The tobacco is then sufficiently pliable to admit of handling and packing while hot, although it will appear perfectly dry as soon as cool.

### FLUE CURING.

The primary object of flue curing is to produce bright colours in the leaf, but in the dry climate of South Africa it is becoming evident that heat has a value in the curing of dark tobacco, if for no other reason than to remove the greenness so common in much of the air-cured leaf. Turkish tobaccos have been commonly sun cured, but experiments conducted during the past season indicate that these tobaccos can also be cured in the flue barn. By this method the loss due to unseasonable weather is avoided, the colour is brighter and more even, and as far as can now be judged there is no loss in flavour or aroma.

When harvesting tobacco for flue-curing we prefer to prime the leaves, that is, pick off only those leaves that are fully ripe. The tobacco is then carried in baskets to the barn, where it is tied on sticks. Each stick is  $4\frac{1}{2}$  feet in length, or long enough to extend from one pole to another. A hundred and fifty leaves go to one stick, and two good boys will tie seventy-five to a hundred sticks in a day. The leaves, in bunches of three, are fastened by means of a peculiar hitch, easily made but difficult to explain.

The barn should be filled as rapidly as possible, for if a portion of the leaves become wilted while the remainder are still fresh it is almost impossible to cure a barn of even bright colour. As soon as the barn is full, start a slow fire in the furnace, and slowly bring the barn up to a temperature of 90° F. A hot fire at the start will ruin much of the tobacco in a few minutes. The temperature of 90° should be maintained until the leaf has yellowed. Where the leaf is ripe and sappy and has been grown on a sandy soil this will not be difficult, but where the leaf has made a slow growth and is leathery it often refuses to colour. In the latter case increase the humidity of the room by sprinkling water on the flues until the air feels moist. The yellowing stage will require from twelve to twenty-four hours, depending upon the character of the leaf, and where more than a full day is required it is almost impossible to secure really bright tobacco, and the attempt may be abandoned. If the building is required the obstinate leaf may be shifted into another building and left to air-cure, but if it is left in the flue-barn a slow fire should be kept up for several days, and the temperature of the room maintained at from 80 to 100 degrees. So long as the temperature does not run over a hundred the fire will not require much attention. This, it must be remembered, is for tobacco that will not yellow, and does not apply to bright tobaccos.

The second stage of flue-curing is that of fixing the colour. As soon as the leaf has turned to a greenish yellow colour commence to slowly increase the temperature. If the leaf is permitted to become a bright yellow before the temperature increases there is danger of it becoming dark and badly sponged before the colour is fixed. As a rule the temperature is increased at the rate of about two degrees an hour, but this is dependent upon the condition of the leaf. The fixing of the colour is the difficult stage in flue curing, for if the temperature be too low and the room humid the leaf will "sponge." By sponging we mean that it develops nasty porous brown patches. Sponging is checked or prevented by slightly increasing the heat and opening the ventilators, but it must be remembered that the heat cannot be rapidly increased, for

as the heat increases the tobacco sweats (is covered with beads of moisture), and the result is that the novice again increases the heat in an attempt to carry off this moisture, the tobacco sweats still more, then heat is again increased until a point is reached where the surface of the leaf is cooked and it begins to "blotch." The term blotching is used to describe the smooth, hard reddish-brown spots that appear on the leaf as the result of high temperatures. When the leaf blotches, the beginner is frightened, and rapidly reduces his temperature, with the result that the warm leaf still sweats, and sponging becomes general throughout the barn. The correct practice is to keep the leaf sweating, but to so regulate the temperature and ventilation that the moisture is carried off the leaf as rapidly as it appears, and at the same time to limit the ventilation sufficiently to prevent the surface cells of the leaf from being dried out faster than they can draw moisture from the interior of the leaf. If these surface cells become dry at this stage the moisture cannot escape rapidly through them, but remains in the leaf, and at the slightly higher temperatures to follow results in blotching. The leaf must sweat, but cannot do so in a very dry air, but if at the same time the air is over humid, oxidisation is rapid, and the leaf sponges. To state in another way, sponging is the result of moisture on the surface of the warm leaf; blotching is caused by the failure of the moisture to escape and the cooking of that portion of the leaf by high temperatures, and is often induced by the drying out of the epidermis of the leaf at any of the previous temperatures. Sponging is prevented by ventilation and by the slow increase of temperatures; blotching is prevented by the same means, but, in sponging, the greater the ventilation the less the danger; in blotching, the greater the drying ~~due to~~ ventilation the greater the danger. To prevent both it is necessary to strike a happy mean, which is not difficult where all the leaf in the barn is of the same degree of ripeness. Where the leaf in the barn varies regarding the degree of ripeness it will not undergo the same changes at the same time, and it is necessary to regulate the heat and ventilation according to the requirements of what appears to be the most valuable class in the barn.

To go back to the first or yellowing stage. As we have before stated a certain amount of humidity is necessary during the yellowing stage, for if the moisture escapes rapidly from the leaf all action within the cells ceases and the chlorophyl (green colouring matter) of the leaf is not destroyed as it is when the leaf remains alive and slowly starves to death. This destruction of chlorophyl by the dying leaf is noticeable in all leaves, except those that are rapidly killed by excessively high or low temperatures, dry winds, etc. In an ordinary air-curing barn the same yellowing takes place where the weather conditions are favourable, but in a flue barn the change is much more rapid, and under the influence of heat the leaf yellows as much in a day as it would in the air barn in a week. In the air barn, however, if the weather is cold or dry only a portion of the chlorophyl disappears, and the leaf is left with a nasty green tinge. Now it is evident that under ideal conditions any leaf would become as yellow in an air-curing barn as in a flue-curing barn, but those ideal conditions seldom exist, for if the weather is excessively moist each portion of the leaf oxidises as rapidly as the chlorophyl disappears, and we never observe the yellowing stage.

Now in the yellowing stage in the flue-curing barn the novice remembers all that he has heard about excessive moisture in the barn inducing sponging, and in an effort to keep ahead of his tobacco he starts full ventilation too soon, that is, before the leaf has yellowed, and ends up by so drying the leaf that there can be no change, and it therefore remains green. This is the same effect as produced in an air-curing barn or in sun-curing by drying winds.

To return to the fixing of the colour. After the temperature has been slowly increasing for from fifteen to twenty hours, and the leaf has lost the greater portion of its moisture, it will begin to dry at the tips and around the edges. Where this drying is general throughout the barn, the second stage may be regarded as at an end. The temperature at this point should be about 120° F.

The third stage simply consists of the rapid drying out of the leaf, and is commonly calling "the killing

of the leaf." The temperature is increased from 120° to 135° or 140° F., at the rate of four or five degrees an hour, and is held at the higher temperature until the midrib is perfectly dry and brittle. During this stage the ventilators are partially open, but inasmuch as less moisture is escaping than during the sweating stage, and because of the great draught due to the heat, they are not fully open. Wide-open ventilators mean a large consumption of fuel.

If the tobacco has not been primed but the whole plant hung, the temperature is then increased to 160° or 175° and continued until the stalk is dry. No moisture must be left in either the mid-ribs or stalk, for this moisture will in time run back into the leaf and result in red streaks.

As soon as the drying is finished the fires are drawn. The leaf may then be rendered pliable by running steam into the room, after which it is taken down and removed to the packing house for re-grading. In the packing house it may be bulked on the curing sticks and handled at a later date. In moistening the hanging leaf only use enough steam to render the body of the leaf pliable, while the midrib remains brittle. Excessive moisture will result in mould and in the darkening of the leaf.

When it is desired to pack the leaf stored in the packing house, hang the sticks in a steaming case and moisten with hot steam. The leaf will be pliable while hot, and can be baled, but as soon as cool will be brittle and appear free from moisture. If the leaf is pliable when cold it is evidence of too much moisture, resulting from an over-prolonged steaming in the chest.

During the curing process, large timber will be found to give a more even fire and less changeable temperature than small sticks, and the bulk of the wood should be heavy. Small sticks are needed to put with the large wood whenever the fire is low. When the fire is to be left for some time, and it is feared that the temperature will vary, it is safer to so arrange it that it will become less instead of greater, for the brick walls of the buildings will give up suffi-

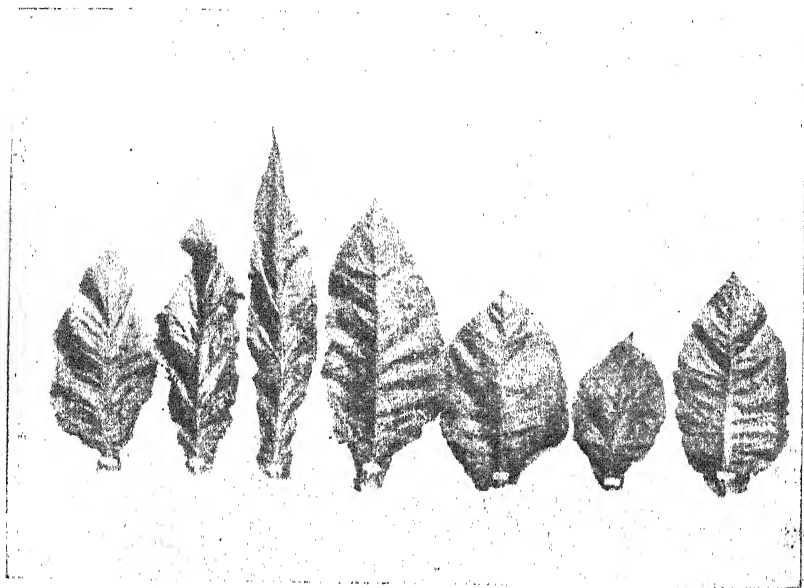
cient heat to compensate for a diminishing fire. A large bed of coals will maintain an even temperature for a couple of hours. Avoid rapid changes in temperature, and even where the temperature is found to have dropped below the desired point, do not attempt to force it up rapidly by means of a large fire, for the result will be excessive temperatures in a few minutes, and the ruination of the tobacco. When it is intended to open the ventilators, slightly increase the fire before doing so, and thus prevent a falling temperature. At sundown additional firing is necessary to maintain the day heat, and at sunrise the fire should be slightly reduced unless an increased temperature is desired.

The first, and perhaps the most essential, point in connection with flue-curing is to have all the tobacco in any one barn uniform in ripeness and in body, and all as ripe as possible.

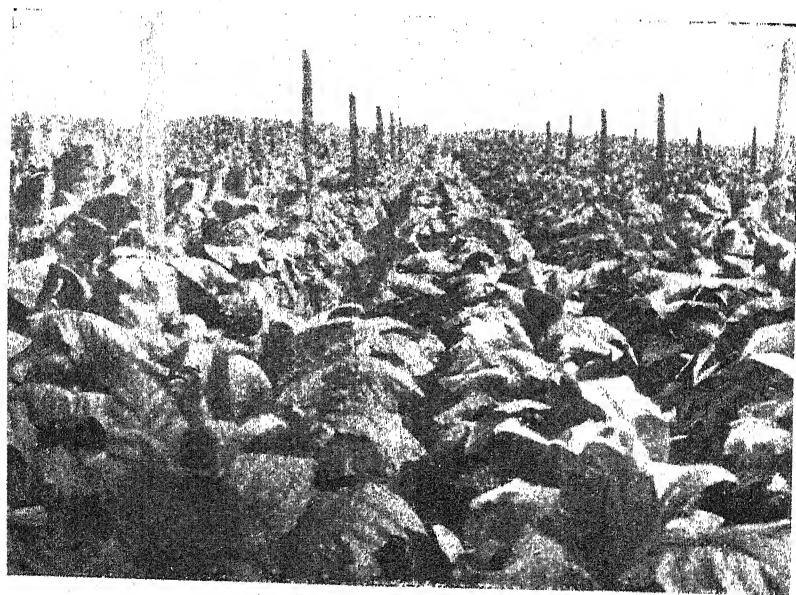
Turkish tobacco, being light and thin, changes much more rapidly than Virginia leaf, and all the stages are of shorter duration. The same high temperatures are not required, and 120° is the highest temperature that we care to use for this type of leaf. The leaf dries rapidly, and the ventilators need never be fully open.

### TOBACCO BREEDING.

No tobacco planter can walk through his fields without observing that it is seldom that any two plants are alike. Every possible variation in the shape and texture, number, and placing of the leaves is apparent, while some plants are destroyed by disease or ruined by insects, although others at the same time under the same conditions escape. There are few plants in any field that approach the ideal, but if every plant were equal to the few best plants the return from the field would be doubled. Soil and climate largely influence the quality of the tobacco crop, but they cannot be held accountable for the variations within the one field. The variations are due to inherited tendencies. To combine all the desirable characteristics appearing in the field in one plant, and then have every plant in the field alike, has always been the



Differences in characters of leaves from plants of the same variety of Tobacco.



Uniformity in Tobacco Plants from Self-fertilized Seed. The two central rows of one strain; adjoining rows from a different strain of same variety.

aim of the best tobacco growers, and while great improvement has been effected in the tobacco plants, growers have failed to secure their ideal strain, the reason for the failure being largely due to the fact that the seed plants have not all been of the same type, and that these seed plants have often been cross pollinated by insects, resulting in endless variations and reversions. It has only been during the past few years that there has been any truly scientific breeding of the tobacco plant, and the results already secured certainly indicate that there is no plant so susceptible to improvement as tobacco.

Many species of plants require cross pollination (pollination from other plants within the species) before they will produce fruit at all ; although a greater number are more vigorous as the result of cross pollination, there are a number of species that appear to be more vigorous when self-fertilised, and tobacco is one of these. Cross pollination produces endless variations, and thus permits of the selection of better types, but, at the same time, where cross fertilisation is necessary it is often difficult to fix the type, because of those variations. Self-fertilisation (which is practically the same as in-breeding in the animal kingdom) renders it more easy to fix a type, although, as before stated, it often results in a loss of vigour. The fact that tobacco retains its vigour or even becomes more vigorous when "in-bred" renders the task of fixing desirable types much more easy. The tobacco plant is at the same time wonderfully prepotent (prepotency has been defined as the quality of transmitting characteristics to progeny), and a self-fertilised parent plant will very largely transmit all of its good and bad points to the next generation of plants. Thus if we select a parent plant because of the fineness of its leaf, or its disease-resistant powers, we may expect to find those qualities in its progeny. It is then a comparatively simple matter for a tobacco grower to secure a strain in which the plants are very uniform, although the value of that strain will depend on the correctness of the breeder's ideal, and the judgment used in the selection of plants to conform to that ideal.

The method used in the selection of the parent plants is as follows :—At any time that the grower observes a

plant in the field that in any way approaches his ideal, it is marked. At topping, the blossom of this plant is not removed but is covered with a stout oiled or Manila paper bag. Any flowers that are already open at covering time are removed, and the large seed branches are broken off, leaving but the central cluster. The upper leaves on these plants are removed down to the point where the plant would have otherwise been topped. These covered plants are observed as often as possible, and from time to time those that show inferior qualities or vary greatly from the ideal are discarded. When the seed is ripe, the head, still in the bag, is cut off and hung up in a dry room. Throughout the season each plant has been numbered, and notes have been made regarding it. The few plants that have approached nearest to the ideal are in the end saved for next year's seed crop. The following season the seed of each parent plant is sown in a separate bed, and when the plants are set, the progeny of each parent are kept by themselves in the field. The second year the selection is made from the plants in the plot that is the most uniformly good. This process is carried on year after year, and if good judgment has been exercised there should be a steady improvement.

Where the grower can devote slightly more time to the work a more thorough method of selection is adopted, and the leaves of each seed plant are so marked in the curing barn that they can be identified with their seed head at any time. These leaves are tested after being cured, and the final selection is made on the basis of the quality shown, and the corresponding seed heads saved for the growth of the following crop.

The cross fertilisation of plants of desirable types with its resulting variations, and a new series of selections from the self-fertilised progeny of the cross, is the next stage for the systematic plant breeder, although somewhat beyond the scope of the average commercial tobacco grower.

The tobacco grower who has but a little time to devote to this work may effect a wonderful improvement, even if he limits his selection to the growth of the plants in the field without carrying the test through the curing barns.



Flower Head protected from foreign pollen ("cross-fertilization"), by a manila bag.

## WHY WE HAVE IMPORTED SEED.

Three years ago we were not certain that we could grow tobacco of any great value, and in the event of the tobacco growing being of value, we did not know what types would result, or what the merits or demerits of any type would be, therefore it was necessary to carry on widespread experiments with imported seed. Out of some thirty varieties imported we have discarded all but a bare half-dozen, but the few varieties retained are producing us valuable types of tobacco in several districts. Seed selection in the past, particularly by men not yet fully familiar with the details of tobacco culture would have resulted in a mixing of types and the establishment of undesirable strains. With the best of intentions on the part of the grower, the selection of seed by him, might result in a slight falling off in the quality of his tobacco until the product would in a short time discredit the industry.

Imported seed is, however, by no means fully satisfactory, for not alone is there some uncertainty regarding its age and quality, but there are amongst the plants grown from all imported seed, regardless of the country of its origin, a large number of wildings. Wildings are plants with coarse leaves and branches, resembling the original wild type, and the quality of this tobacco being decidedly inferior, their presence in the field materially reduces the value of the crop. But further than this, imported seed, being from countries where our "white blight" is not a tobacco disease, has not acquired, as far as varieties are concerned, any resistance to it although individual plants often show a partial or complete natural resistance.

It is practically certain that we can by selection develop strains free from wildings and deformed plants, and resistant to disease, and it is also certain that we can develop uniform strains with better shaped and better placed leaves, but at the same time we do not know whether the quality of the tobacco from the standpoint of brightness, of leaf, flavour, and aroma will tend to become better or worse. There is a possibility that our cigarette types might in time acquire the flavour of Boer tobacco (which, while well enough in some types of pipe-smoking tobaccos, must be avoided in the substitutes for imported leaf that we are now growing).



Winter-grown Tobacco in Victoria.



We are inclined to think, however, that a rigid selection of parent plants, with this possibility before us, will result in a retention or even an improvement of these desirable qualities. At the present time it is worth while to breed for those qualities such as disease resistance, which we know we can secure, and if experience demonstrates that there is a loss in aroma or colour we can then change our methods.

The Agricultural Department is now conducting some tobacco breeding experiments, but with a limited staff it is impossible to do this work in more than one



Resistant and semi-resistant Plants growing on infected soil.

or two districts at the present time, so rapid advance is dependent upon the efforts of the men who are every day in their tobacco fields, and who will be the first to profit by the results.

For much of the work done in tobacco breeding we are indebted to the work of Mr. A. D. Shamel, of the U.S. Department of Agriculture, and his report on the subject, issued as Bulletin 150 of the Connecticut Experiment Station, should be secured by those interested in the work.

## CULTIVATION OF TOBACCO.

The following notes on the cultivation of tobacco, by George Milton Odium, Esquire, Agricultural Assistant, are published herewith for the information of tobacco growers :—

### PLANT BEDS.

Burn the site. Close sides with brick or iron. Cover with very thin open calico. Sow seeds with ashes, sand, or meal. Use commercial manures. Sow succession of beds. Harden off plants by removing covering. Do not waste the Turkish seed, which is difficult to secure.

### PREPARING THE LAND.

Plough deeply. Have the soil in perfect tilth. Use fowls and poison to destroy insects before planting time. Prepare flood-water drains.

### TRANSPLANTING.

Use strong, healthy plants only. Water bed before drawing plants. Do not draw much ahead of planting requirements. Do not mix varieties. Give each variety the correct distance. Set the plants firmly; do not leave them dangling in a hole. Do not plant in depression where soil can be washed over them. Define rows with a home-made marker. Do not splash water on plants, but pour in a hole beside them. If shading, remove covers as soon as possible, for insects will shelter beneath it. Replace "misses" as soon as convenient, and thus secure an even "stand."

### CULTIVATION.

Keep soil thoroughly stirred by means of hand and horse propelled implements. Do not permit earth to cake around the plants. Weeds are a breeding place for fungoid diseases and insects. Good leaf depends upon rapid and constant growth. The growth is in a large measure dependent upon the degree of cultivation.

## INSECTS.

Flocks of turkeys, ducks, and fowls will hold these in check. Poison is the next best thing. For grasshoppers and beetles, spray field and border with Paris Green at the rate of 1 lb. for each 100 to 150 gallons of water. Add some freshly slacked lime to prevent "burning."

## WHITE BLIGHT.

Keep field and border free from weeds and vegetation. The blight spreads from these. Remove inferior lower leaves to a height of 1 foot at an early stage of growth. The blight first gains a foothold on the lower leaves. Circulation of air through the field prevents it. Nothing is lost by removing the lower leaves, for more higher leaves are left to replace them. Remove any other infected leaves. Spray with one per cent. solution of copper sulphate, to which some freshly slacked lime has been added.

## SUCKERING.

Remove all "suckers" and "sprouts" as often as they appear.

## TOPPING.

Do not be in a haste to "top," but wait until the flower stalk is well up. Topping is a matter of judgment, and the number of leaves left varies with each plant; and is determined by the vigour of the plant, the character of the season, and the purpose for which the crop is being grown. If too many leaves are left, they will be thin and lifeless; if too few, they will be coarse. Err in the direction of leaving too many; additional leaves can be removed later if necessary. Late rains and new growth often coarsen plants that otherwise were correctly topped.

## PREPARATIONS.

Have baskets, sticks, needles, twine, presses, barns, and labour provided for, well in advance of the season. Neglect in this particular means badly handled tobacco and loss of time and money.

## CAUTION.

Do not cling too closely to any particular practice. Methods must vary with seasons and conditions, but the methods must be based on the principles underlying the growth of the tobacco plant and the production of good tobacco. Unless you know what is required, and what any particular will accomplish, you are working in the dark.

If tobacco could be grown anywhere and everywhere, it would have no value. A business that gives so good a return cannot be left to chance. Do not be misled into thinking that you will achieve a high degree of success from the beginning, for it takes some years to adapt methods to conditions.

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## **The Possibilities of Rhodesia as a Citrus Growing Country.**

By R. McILWAINE, M.A., LL.B.

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The surprising results, attained with comparatively little effort, in the growing of oranges and kindred fruit in this country has led me to take a lively interest in the subject of citrus growing and to acquire reliable information as to the conditions under which it is carried out in other parts of the world. The recorded experience of other countries and personal observation lead to the firm belief that Rhodesia is singularly adapted to become a leading citrus-producing quarter of the globe, and all that is required to set on foot an industry highly profitable to the individual and of general benefit to the community is a little fostering care in its initial stages.

The following remarks contain some of the facts on which the belief expressed above is founded:—

### **I. EXISTING SOURCES OF SUPPLY.**

Citrus fruits are produced more or less abundantly in all countries lying between latitudes of 40 degrees North and South of the Equator, but the world's great markets are chiefly supplied by fruit grown either in the neighbourhood of the Mediterranean, in California or in Florida.

Covent Garden relies for its principal supplies on Spain, Malta and the country round Jaffa, and it would appear that, thanks to the well-directed efforts of the Imperial Department of Agriculture in the West Indies, those islands are putting a yearly increasing supply on the home markets.

The demands of New York and other great centres in America are met by the products of California and Southern Florida.

## II. VOLUME OF TRADE.

The magnitude of the orange trade may be realised when one considers that the annual imports into Great Britain comprise some 6,000,000 cases, amounting to a value of over £3,000,000, and that the output of California alone is no less than 9,000,000 cases a year.

Owing to the occurrence of severe frosts and other disasters the output of oranges from Florida has not increased in the same ratio as that of California, but the latest available statistics show an output of about a million and a half cases.

Certain localities in the other South African States, and in the Australian Colonies appear suited to the production of citrus fruits, but the industry has lacked the necessary attention, and the yield is not largely in excess of local demands; import statistics indicate an occasional shortage.

## III. SUPPLY AND DEMAND.

The present vast output may appear sufficient for the world's demands, and that any large increase in the industry would result in glutting the markets. There is abundant evidence, however, that such fears are not justified. There are great centres of population which are still very inadequately supplied. Further, the difference between the selling price and the cost of production is so great that the fruit could be sold at a considerable reduction and still afford handsome profits for the grower.

The income derived from flourishing groves and the prices they command in the market is the best evidence of their value. Before the great frosts in Florida groves were so valuable that an annual yield of £100 per acre

was not considered exceptional. A copy of the *Californian Fruit Grower* of the 29th of June of this year, now before me, places the orange income of a large number of the groves for the past season at about £100 per acre, and the market value of these properties at from £360 to £400 per acre. These figures would indicate that the vast increase of the orange output in the last decade has not resulted in a decrease in prices.

#### IV. PROFITABLE CULTIVATION.

The foregoing figures indicate the enormous value of citrus plantations and the high incomes derived therefrom, but the question may be asked, are the *clear* profits correspondingly high? In California, where the cost of cultivation is a serious factor, an average clear profit of about £50 an acre is reaped. We find it stated in the *Agricultural Gazette* of New South Wales that, even in that land of expensive labour, orange groves return £100 per acre year in and year out.

#### V. RHODESIAN PROSPECTS.

If, therefore, it is granted that room still exists for the expansion of the citrus industry, let us consider whether we, in Rhodesia, cannot benefit by this fact, and whether the local conditions of this country do not present special advantages and facilities which we might turn to high profit. In considering this let us bring under a brief review, firstly, the difficulties existing in present sources of supply; and, secondly, the natural advantages found in Southern Rhodesia.

#### VI. DIFFICULTIES IN EXISTING SOURCES OF SUPPLY.

In California, where the citrus industry has been brought to such perfection, the price of good land is high. The rainfall is so scanty that artificial irrigation is indispensable, thus entailing an initial outlay requiring a capital not within the means of everybody. Labour is anything but abundant, and costs not less than 5s. a day. The country is accounted comparatively immune from the more serious insect pests and plant diseases, but in San Jose scale it possesses a pest compared with which

the worst of our plagues are mere trifles. I also note from recent journals that the dreaded *white fly* of Florida has gained a footing in one locality.

In Florida nearly all the foregoing difficulties are experienced, although irrigation does not appear to be generally necessary. On the other hand, the area subject to periodic destructive frosts appears to be extending southwards, and not a few growers have found it profitable to provide artificial shelter for their trees at a cost even exceeding £80 an acre.

The citrus production of Spain and the Mediterranean coasts and islands is enormous, and although labour is relatively cheap, suitable land is expensive, and climatic vagaries often work havoc with the crops.

The groves of Jaffa are of world-wide reputation, but they are of comparatively limited extent. Their collective area does not exceed 3,000 acres; the annual crop is valued at about £120,000.

If not one of the difficulties and shortcomings of the countries referred to existed, our situation would be none the less favourable owing to the predominating fact that we are in the Southern Hemisphere whereas the places enumerated are in the Northern, consequently our products would be in the Northern Markets at a time when lack of competition should result in handsome returns.

## VII. NATURAL ADVANTAGES OF RHODESIA.

Observation and experience would point to the existence of unlimited areas in this country suited to the production of citrus fruits of the first quality.

Compared with other citrus-growing parts the price of the land is negligible.

Persons from the less favoured South African and Australian Colonies do not accept, without hesitation, the assurance that the abundant and regular rains, especially of Mashonaland, if received on a properly prepared soil and conserved by modern methods of tillage render the artificial application of water to citrus trees quite unnecessary. The writer has demonstrated in a small grove that trees will not only exist but flourish with no other water than that naturally supplied. In the light of the experience of other countries this is not regarded as any exceptional achievement, it is an application of what has

been accomplished under far more adverse circumstances elsewhere, and is merely quoted to show that irrigation of trees in Mashonaland, and most likely throughout Rhodesia, is an unnecessary labour and expense.

Climatic and meteorological conditions appear exactly suited to the growth of fruit of the finest quality, and the fact of its ripening in the dry season affords exceptional opportunities for cheaply harvesting crops whose keeping qualities have been enhanced by natural conditions rarely if ever found elsewhere.

The cost of unskilled labour is not one quarter of that prevailing in California or Florida.

It is customary for many residents in this country to consider it a place specially given over to insect pests and all manner of plagues and diseases. The experience of other countries would show that this belief is not well grounded generally, and has no application in the case of citrus trees. Our worst natural enemy is the imported red scale, which may easily be exterminated by fumigation; other minor troubles are kept in subjection by minor and inexpensive remedies.

As already indicated, the chief factor in our favour is that the markets of the Northern Hemisphere are open to us when there are no serious rivals. The opinion has been expressed that citrus fruits would not be appreciated during the season of other soft fruits. This belief does not appear to be well founded, and is in conflict with the views of the Secretary of the Royal Horticultural Society of England as expressed anent the Transvaal Exhibition of citrus fruits in London last year. The following is an extract:—

“We badly need citrus fruits all the summer through, and our lemon supply often falls short.”

As the foregoing remarks will indicate a local industry would look for its markets over-sea, but while preparation is being made for these, a profitable business can be done within South Africa. The orange season could be lengthened by many months by the selection of suitable early and late varieties, many of which have not been tried in South Africa. Lemon curing has not yet been attempted on commercial lines, hence a very considerable sum is sent out of the country annually for Italian lemons, which under a different system would be wholly unnecessary.

## VIII. PROBABLE RETURNS FROM RHODESIAN GROVES.

Without some detail as to what might reasonably be expected from Rhodesian plantations there is some risk of its being assumed that the returns and profits quoted with reference to other parts of the world apply to long-established groves, and that not only a long time but great preliminary expense is also necessary to bring the plantations to a profit-bearing stage.

The initial cost of preparing the ground is considerable in many parts of the world, but there is little doubt but that almost every farm in this country has sites which could be cleared at a nominal expense, and for the better preparation of the soil a preliminary crop may be grown which will often recoup the expenses of clearing.

In the initiation of a citrus industry here it is considered that intending growers could be supplied with nursery stock of approved varieties at the cost of production which should not exceed £5 per acre.

A grove of budded trees will bear early; if well cultivated and healthy, they will produce a few fruits in the third year, and from 50 to 100 may be borne in the fourth without any injury to the trees.

The writer has many trees in this, their fifth year, bearing from 300 to 400 oranges without in any way retarding their thriftiness, a result not expected in California and Florida before the sixth and seventh year.

The results obtained personally and no less remarkable returns witnessed elsewhere under very indifferent methods of cultivation, promise yields certainly equal to those of Florida and California. On this basis an acre of 100 trees would yield 40,000 oranges, equal to about 220 standard cases in the seventh year. When an over-sea trade is established with reasonable (by which is merely meant not excessive) transport rates, 5s. per case may be taken as an average net profit, or about £50 per acre. This calculation is based on the assumption that the fruit is of medium quality fetching prices not in excess of those prevailing in the European markets in the winter months; choice and seedless varieties would command higher prices, and the time of marketing would, it is believed, be a favourable factor.

## IX. ALLEGED DRAWBACKS TO A RHODESIAN INDUSTRY.

It is not an uncommon opinion that distance would be an insurmountable barrier to Rhodesian fruits securing a profitable place in northern markets, inasmuch as the fruit would not survive the long journey, and if it did the cost of transport would be prohibitive.

With careful packing no loss need be sustained through spoilt fruit, as has been shown by recent trial shipments from Natal, as also by an experimental consignment sent to London by the Government of New South Wales. This last was carried 600 miles by rail and 12,000 miles by water, and arrived at its destination in excellent condition. The Monument Fruit Markets "had nothing but praise for the fruit," and the Covent Garden Markets reported "the quality is all that could be desired."

As already indicated, Rhodesian shippers would enjoy the exceptional climatic advantages of packing under conditions most favourable to promoting the keeping quality of the fruit.

The question of cost of transport is not so easily disposed of, chiefly because the matter is in the future and must depend to a great degree on volume of trade. The railways have offered exceptional facilities for the export of surplus grain, and the same concessions may be expected for any other surplus product of the country. On the whole it is improbable that the combined railway and ocean freight would exceed the amount paid by the Californian growers in marketing their fruits. That this is very considerable appears from the following extract from the *Pacific Rural Press* regarding last season's citrus crop in Southern California:—

"The Southern Californian crop this year will bring \$20,000,000, and will amount in round numbers to 27,000 car loads, as shown by figures compiled to-day. The growers will get half of the \$20,000,000 and the Southern Pacific and Santa Fe Railroads nearly all the remainder."

EXTRACT FROM THE "NATAL AGRICULTURAL  
JOURNAL" OF JULY 18TH, 1902.

**Sugar-Cane Fodder.**

By LEONARD ACUTT, J.P.

Now that an increasing interest seems to be taken in the question of growing sugar-cane for stock feed, it seems to be an opportune moment for redeeming my promise to you to write a few notes on the subject for the Journal.

LOCALITY.

I believe that sugar-cane will thrive sufficiently well to produce a large quantity of fodder in any part of South Africa, not excepting even the coldest parts. Of course, it will grow best where there is most heat and moisture, but the colder the climate the more necessity is there for fodder, and the smaller crop which would be grown in the colder parts would be, relatively, of as great value as the larger crop grown in less rigorous parts.

PREPARATION OF LAND.

Land prepared for a mealie crop should do very well for sugar-cane. Pen manures, bone dust, Thomas' Phosphate, and all the manures used by farmers are all good for sugar-cane.

DISTANCE APART.

I should recommend the cane being planted in furrows, say, 8 or 9 in. deep and 4 ft. 6 in. or 5 ft. apart, the latter distance will give more room for horse-hoe cultivation.

PLANTING.

In these furrows lay down, every 3 ft. or so, two pieces of sugar-cane of, say, 1 ft. in length. The cane sets should be a little distance apart so as to allow each eye room to shoot. Care must be taken to see

that the eyes are at the side, so that each has a chance of growing, whereas if one row of eyes is underneath you will get no growth from them. I prefer this method of planting to the plan of putting in a continuous line of long canes, as a few eyes will start first, rob the rest of all the strength, and the result would be gaps in your line. Cover with about 2 in. of soil, unless it is of a very stiff nature, when less will do ; also less will do when the soil is wet at the time of planting. Unless the ground is very wet when you plant, tread well along the furrow after the canes are covered. I have in my mind one of the first fields I planted, which got very dry weather afterwards, and the only row which came up well was one along which my Kafirs had made a path.

### MEALIES AS A CATCH CROP.

Mealies can well be planted between the rows, but I would not advise closer planting than, in every other line, 3 ft. apart. This distance will not hurt the cane at all ; you get exceptionally fine mealies—I have known as heavy a crop as four muids to the acre to be reaped.

### WEIGHT OF CANE PLANTS.

About 3,000 lbs. weight of canes will be enough to plant one acre of ground.

### TIME OF PLANTING.

On the coast we plant in August if we get rain, and in September whether we get rain or not. I cannot say which month will be found most suitable in other districts, but I should think it would be advisable to wait for the first rains, unless in ground which can be irrigated. In such land planting may be done as soon as frosts are done with.

### WEEDING.

Like other crops, cane should be kept clear of weeds. I would only say that it is of more importance to keep canes clean among the plants than in the middle of the row, as there the cleaning is not of so much consequence.

## THE FIRST CROP.

This will appear slow of growth, as the plant has to make its roots, and, therefore, in the coldest parts of the Colony, or where it is not practicable to give much manure or any water, the growth, by the time the frosts come round again, may be a little disappointing, but the succeeding crops will give every satisfaction, as the plant will have made its main root system and the growth of canes will be greater.

## MANURING.

Sugar-cane is most accommodating in this respect. The plant can be put into direct contact with the manure in the furrows, or it can be applied as a top dressing afterwards, either by filling up the furrow or by trenching round the stools. But the manure on the field and the sugar-cane will get it. For manuring after the first cutting, I should run a double furrow down the row throwing the soil on to the canes. Fill the furrow so formed with kraal manure to the extent of 20 tons or more to the acre, and cover with earth. To do this hoes will have to be used, as it is not advisable to have any ridge where the cane is growing ; it is better to have the middle of the row higher.

## CUTTING.

This is of the utmost importance if you want your stand of cane to remain for years in vigorous growth. In cutting for feed you will, of course, get all you can, and therefore you will cut low, but still not low enough to keep the stools healthy. Therefore it is advisable to go over the ground again and cut every stump well into the ground. If this is not done there is a tendency in the stools to grow above the ground, and after a few years they will be quite on the surface, and not give much crop.

## LOSS BY FROST.

Of course the frosts will kill the canes every year—I mean the top growth—for frost is not likely to injure the roots. With one or two farmers who grow cane I gathered that they strove to get all the cane cut before it got frosted. I do not think this necessary,

and I think the great value of sugar-cane will be found to be during the hardest part of the winter. I should propose the adoption of the following plan. I will suppose that the farmer has been cutting his cane daily as required, when along comes the frost and kills the remainder. Let him immediately cut this down, cut off any hard cane which may have formed, and use it in the chaff cutter ; this stuff will not keep good for food for more than a week or two. The balance, being mostly leaves, I would stack in the fields at convenient distances, placing the butts to the outside. Experience and the length of the canes will determine the diameter of the stacks. I would make these about 10 ft. high, and weigh down with earth or stones.

A little salt sprinkled in while the stack was building would probably be beneficial. Now fence those stacks with a few poles and strands of wire, and when you want feed take away the fence from a stack and turn your cattle in, and they will stand round and seize the butts one by one, and there will be little loss by trampling. Cattle are very fond of old cane tops, and I have often seen them hanging about a heap of them in a mill yard in preference to eating fresh green tops.

### FEEDING.

It will not pay to grow food, haul it to the home-stead, and throw it down in kraals for the cattle to trample and spoil 90 per cent. of it. Rough, flat racks must be made, a little above table height and about 4 ft. in depth, and the sugar-cane must be placed on this, laid straight, with the "butts" (after taking off hard cane for the chaff-cutter) at the edge of the rack, so that the canes can readily be seized by the cattle. Of course, where all is passed through the chaff-cutter racks are unnecessary. I am not a stock farmer, but I have an idea that cattle like "long" food ; the racking would give them this, and be very much cheaper than chaffing.

I remember at one sugar estate where the mill was supplied with cane by ox-wagons, we used to inspan in the morning and not outspan till the number of loads was complete, and this often took till 4 p.m. The cattle got a drink crossing a river with the loads.

We had a lot of coolie and Kafir boys in the field, one to each span, and these boys gathered tops while the wagons were delivering their loads, and on the return the leader boy and the cane-top boy used to give each ox a top by presenting the butt of it, and then they moved round to any ox that had finished and gave him another. By the end of the day the cattle were literally as full as ticks, and were kraaled at night, and only had about an hour's grazing morning and evening, and if left to themselves they would have wasted more than two-thirds of their time in trying to get hold of the butt ends of the tops.

### CARE OF ROOTS.

I do not think frost will harm the roots, but I think it would be as well, in cold spots, to draw the trash on the stools and weigh down with a little earth until frosts were over.

### LIFE OF SUGAR-CANE.

I have little doubt that sugar-cane will remain in the ground and yield green crops for at least eight or ten years, and probably longer if manured, cultivated and watered. That heavy strain is never put on the roots by cutting an annual green crop, which it has to sustain by ripening and being cut for sugar-making, and consequently neither the land nor the roots is so soon exhausted, and it is probable that the life of the plant will be even longer than this estimate.

Mr. S. Meikle, to whom we are indebted for this article, also supplies the information that cane for planting costs 2s. 9d. per 100 lbs. free on rail at "Tongaat," Natal, in bags.

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## **Fruit Growing at Inyanga.**

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Inyanga, as a whole, appears to be particularly well adapted for the growing of all kinds of fruit, including the Pear, which is not generally a success throughout the rest of Rhodesia. As planter and owner of an orchard containing 1,500 trees, chiefly Apple, Pear and Citrus, I feel justified in giving my experience.

My orchard is experimental to a great extent, my aim being to determine the best sorts adapted to these regions. I have over fifty varieties of apples, and twelve varieties of pears.

In connection with pear-growing, there is an old saying :—

He who plants pears,  
Grows fruit for his heirs,  
Is a maxim our grandfathers knew.  
But folks have learnt since,  
If you graft on the quince,  
The fruit will develop for you.

All my pear trees are grafted on quince stock, and their growth has been very satisfactory. The trees are about five years old. This year an Easter Beurre is out in blossom.

Among my varieties I have found the Buerre Hardy to make the best growth. All the following pears are growing well: Glout Morceau, Easter Beurre, Fertility, Kieffer Hybrid, Beurre Bosc, Louise Bonne de Jersey, and the Williams.

I keep the land free from grass, weeds, etc., plough once a year, and keep the trees well cultivated round the base and mulch with kraal manure.

Inyanga is particularly free from insect pests of all kinds—and may it long remain so—with the exception of green fly; also scale on a few trees, which I easily eradicated with a mixture of soap and paraffin. It is well to eradicate it as soon as it appears, for once it spreads it becomes a difficult matter to get rid of.

In pear culture I find a little liquid manure given to the trees just before the rains to be very beneficial. The pear is very appreciative of cultivation, and of all pears the Bartlett is the most appreciated and most grown; it also bears young, and grows successfully here.

The apple, the best and most popular of all fruit, as well as the most wholesome, flourishes exceedingly well on the high uplands of Inyanga, and has won medals presented by the Royal Horticultural Society of England in open competition with the fruit of other British Colonies. No small honour; and I can testify to the high quality, good size, and heavy bearing of the trees.

Of the trees that have come to the front and are an undoubted success, I would mention the following :—

- (1) Rome Beauty, Ohio. This fruit is of the highest quality, bears young and abundantly ; undoubtedly one of the best apples.
- (2) Jonathan, New York. Highly approved the world over ; bears young ; a success here.
- (3) Cleopatra, Australia. Heavy cropper ; bears young.
- (4) Ohenmuri, a New Zealand variety. Munro's Favourite is another name for this apple.
- (5) Ribstone Pippin. A dessert apple of great value in flavour, and second to very few ; Heavy cropper here.
- (6) Blenheim Orange Pippin, British. Good shipper ; vigorous grower.
- (7) Lord Wolseley. A New Zealand variety.
- (8) Versfeldt, Warner's King.
- (9) Red Astrachan, Russian.
- (10) Rhode Island Greening.
- (11) Newton Wonder.
- (12) White Winter Pearmain.
- (13) Christmas or Lady Apple of Natal.
- (14) Smith's Cider, Pennsylvania.
- (15) Syke House Russet.
- (16) Reinette du Canada.
- (17) King of Tompkins County.

Many more varieties planted at a later date will doubtless do as well.

Apples will grow on any soil which allows extension of the roots ; they thrive on a moist soil, but it must be well drained ; they do not mind a subsoil of loose rock. Avoid an extremely light soil on the one hand, and a very stiff one on the other.

An apple tree will begin to bear profitably about seven years old, in some cases earlier, often later. Rome Beauty, Cleopatra, Lord Wolseley, Red Astrachan and Jonathan, bear young.

I prune my trees annually, during the months of June and July, the trees being then dormant and the sap down ; for anyone possessed of ordinary intelligence it is not difficult to learn. Skilful pruning stimulates the fertility of the tree.

From an apple tree in full bearing, five to seven barrels may be called a fair average.

In planting, the distance between the trees is of great importance ; most of the trees are 25 feet apart.

Most of the Japanese plums do well—the Kelsey, Wickson, and the Apple ; also Burbank.

The Wickson is inclined to be a shy bearer, but the fruit is very fine, has a beautiful acid pear flavour, and is very large ; vigorous grower.

The Apple, a fruit of enormous size, fetching 6d. apiece on the London Market.

These plums grow well and bear enormously. I give them very much the same cultivation as the pear.

I have not tried English plums, which do not seem a success in the Cape Colony. I have seen a cross between the Japanese and the English recommended, and I see no reason why such a cross should not prove a success.

Decidedly it pays to grow the Japanese plum ; the fruit is large, the trees are enormous croppers, but the flavour and quality is not in it with the English plum.

The distance from market is a drawback, and the quick transport over long distances takes considerably from the profit.

Of the orange, I find the Washington Navel do well. I first planted these grafted on the Bitter Seville stock ; the growth is slow, but they bear well. I then tried them on the Rhodesian Lemon stock, which appears to be more satisfactory in every way, and is undoubtedly the stock to use for grafted citrus trees.

The trees want irrigation in September, which gives them a good start.

Every variety of peach seems to grow and bear well, either grafted or seedling ; also apricots and nectarines. The Royal and the Blenheim are great croppers and tremendous growers.

I have also succeeded in growing the walnut with great success, which evidently thrives on Inyanga.

Also a cherry, Black Tartarian, the only cherry in the district ; its growth I am watching with considerable interest. Almonds also grow well.

Strawberries are most prolific. I find Royal Sovereign the best early. President is a free bearer and good flavour ; Mr. Joseph Paxton good.

The artificial manures recommended by the Royal Horticultural Society are as follows :—4 oz. basic slag, 1 oz. kainit, per square yard as far as the roots extend.

All my apple trees are grafted upon Northern Spy stock, which, being blight proof, prevents the ravages of this disease should it obtain a footing.

There is little doubt that fruit growing will assume large proportions in the near future. The distance from the railway is at present a handicap, tending to reduce the profits to a great extent on all soft and perishable fruits ; but methods for more profitable disposal will, no doubt, suggest themselves, such as evaporating, jam-making, fruit bottling, etc. Cider might yet become the national drink of this country. There is no drink known so generally palatable as cider, and it satisfies thirst better than most beverages. It is largely owing to the thin, sour, musty, bodiless liquid which so often goes by the name of cider that its use has declined ; so different from the pale amber liquid, limpid, bright, sparkling, possessed of the most wonderful fragrance and flavour as if the fruit had been packed in flowers and spices, which alone deserves the name of cider. Good cider should be tart and smart yet neither sour nor harsh, and fruity and smooth yet not sweet and sickly. With care and common-sense anyone may with a little trouble manufacture such excellent wine, for cider is as much a wine as the wines of Bordeaux or the Rhine.

The branch here bends beneath the weighty pear,  
And verdant olives flourish round the year.

The balmy spirit of the Western gale,  
Eternal breaths on fruit un-taught to fail.

Each dropping pear a following pear supplies ;  
On apples apples, figs on figs arise.

The same mild season gives the bloom to blow,  
The buds to harden and the fruit to grow.

It is not safe in planting trees to put kraal manure at the roots, as it is liable to heat and destroy the tree ; it is much safer to top-dress the tree when the planting is finished. In planting three buckets of water will be found sufficient for each tree. If planted in September the tree should be well protected from the sun, wrapped in wet sacks ; care should be taken

not to plant too deep, but the same depth as they were when they left the nursery ; the roots should be well spread in a mixture of top soil and a little dry kraal manure, then the whole firmed down.

It is my practice upon the arrival of a bale of trees to put the whole bundle into a pond for twenty hours ; this has the effect of freshing the trees up, then I heel them in in damp ground till required for planting. In planting oranges, lemons, etc., I find it best to plant in the cool, as a hot sun is very liable to kill the tree.

W. LECKIE-EWING, F.R.H.S.

York, Inyanga.

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### **Onion Culture in Rhodesia.**

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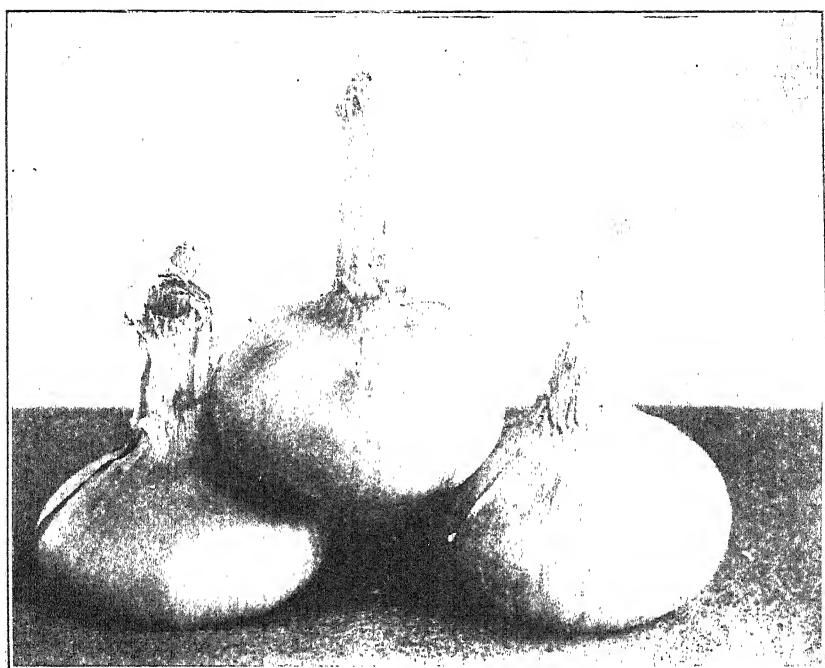
The accompanying illustration is of some onions grown at Charter under irrigation. These were particularly fine onions both as regards size and flavour, and the photograph scarcely does justice to them in the former respect.

This illustration shows what can be done towards supplying the large local demand for onions, if the cultivation is carried out in the proper way.

The seed from which these onions were raised was obtained from reliable farmers at Greytown, Natal. These farmers raise a certain amount of seed yearly for their own use, and it is found to give much better results than the imported seed. The price is high owing to the supply being limited, but the seed is worth the extra money on account of the excellent results obtained from it.

These onions were grown in sandy soil, but they will do well in any soil, provided it is properly prepared and well manured. Excellent onions have been grown in black vleis during the dry season, the soil retaining sufficient moisture to render the need for irrigation unnecessary.

The seed should be sown in beds in April. These seed beds should be made on the same lines as those used for tobacco, they should be watered daily with a can fitted with a fine rose ; in fact the raising of onion plants in the seed bed should be conducted with as much care and on the same plan as the raising of tobacco plants.





The land into which the onions are to be planted out should be heavily manured if a maximum crop is to be obtained; if a choice of the ground can be made, select a sandy loam free from stones and coarse gravel and work it into as fine a tilth as possible.

If the land has been recently broken up, and is still somewhat tough and uneven, a crop of potatoes, mealies, or carrots will do much to improve its condition for the succeeding crop of onions.

Both well rotted stable and kraal manure, as free from weed seeds as possible, are very suitable for onions; any green crop ploughed in, especially if of one of the leguminous family, will give good results, particularly in a sandy soil, but poultry manure is the most valuable fertiliser for this crop, and it can scarcely be applied too thickly. This manure should be collected by spreading dry soil or ashes under the roost, which absorbs any moisture in the droppings; the mixture should be kept dry till required, then pulverised, and applied after the land has been ploughed, and mixed with the surface soil by thorough harrowing; the manure mixed with wood ashes is best, as the wood ashes contain a good percentage of potash, and there is no fear of the mixture conveying any weed seeds on to the land.

The seedlings are ready to plant out when about as thick as a pencil. This is the most tedious and expensive part of the work, but it gives better results, and is probably no more expensive than when the seed is sown in the rows and has to be thinned and weeded by hand. The onions in the illustration were planted out about June. After being removed from the seed bed, and before being put in the ground the tops should be cut back, and the roots shortened to almost half an inch of the bulb or stem. If this is done the plants are less liable to wither and bend over; also the roots can be more easily spread out when short, and take a firm hold of the ground in a less time.

The simplest way to transplant onions is for one native to make a small trench along a line stretched across the field, the onions previously shortened, are laid along one side of this trench, and another native following on covers them over to a depth of about one inch, at the same time forming a trench with the back of the rake down which the irrigation water flows. As soon as the maximum daily

quantity have been put out they should be well irrigated, and after this a thorough soaking once a week is sufficient to bring them to maturity.

The distance between the rows depends upon the method of cultivation to be employed. If it is intended to use a horse hoe, then they should be at least three feet apart, but there are several very useful wheeled hoes which are most excellent for cultivating onions by hand. These hoes can be used to mark out the rows before transplanting, and also with another attachment will straddle the plants and keep down the weeds and maintain a good mulch on each side of the rows; after the plants are too high to straddle the same hoe can be used between the rows with equally good results. With the use of these wheel hoes the rows can be put 14 inches apart, thereby restricting the amount of land under cultivation, and enabling the manure to be applied more thickly over a small area.

After the onions are about half-grown it is advisable to give them a top dressing of manure; this is generally done by digging a pit above the land, filling it with manure, and allowing the water to flow through it and thus carry the soluble ingredients of the manure down to the plants; the manure in the pit should be occasionally stirred up while being used.

Owing to the onions being grown during the winter months they are not so subject to the attacks of insect and fungus pests. Onions grown during the wet season are almost always affected by Mildew; this is caused by a fungus which first attacks the leaves, these become coated with a delicate coating of fine mould, changing to grey or light brown; eventually the leaves wither away. The bulb is not affected, but when the disease is present they remain small and do not mature properly. The treatment for this disease consists in thoroughly spraying the crop with Bordeaux Mixture, made as follows: 4 lbs. sulphate of copper, 4 lbs. fresh lime, or 5 lbs. ordinary washing soda, and 40 gallons of water. Potassium sulphate, 1 oz. to 2 gallons of water, has also been found effectual.

The onion maggot is another pest to which onions are subject in many countries; the fly deposits its eggs on the leaves of the young onion plants; these hatch out into

small white grubs, which crawl downwards and eat their way into the bulb. If the maggots are very numerous one year onions should not be grown on the same land the following season, but a crop which does not supply a suitable medium on which the adult fly can lay its eggs should be grown instead.

Heaping up the earth round the young bulbs, while the fly is at its worst, so that the maggot when hatched cannot find its way into the bulb has been found fairly successful in checking this pest; also a mixture of half a pint of paraffin mixed with a pailful of dry material, such as wood ashes, and sprinkled along the rows about twice a week will be found a good remedy.

The onion Thrip, which causes the leaf of the onion to die off as if attacked by blight, is best kept under by spraying with Whale Oil soap, 1 lb. of soap to 4 gallons of water, or with paraffin emulsion. The spraying should be done thoroughly, and the soil round the plant should be sprayed as well.

Suggest adding top dressing generally used by digging a pit above the land, tilling with manure, and allowing the water to run through and occasionally stirred up.

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## **The Salisbury Foxhounds.**

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This pack was started by Lt.-Col. Chester Master in 1906, and has shown excellent sport around Salisbury for two seasons.

The hounds were all imported from well-known English packs, and have hitherto been kept up to strength by drafts from the old country.

The hunting season commences as soon as the early rains have moistened the ground, and continues as long as the veld remains rideable.

It is found here, as in other parts of South Africa, that the English foxhound readily follows the spoor of the jackal, which is the local representative of the fox tribe, and exhibits, during pursuit, the characteristic slimness and resource of his species.

During their first season, in addition to the jackals they killed, these hounds included in their bag buck, wild pig, badger (ratel), porcupine, several varieties of wild cat, etc., as well as an occasional hare; but finding that the jackal shows by far the best sport, their attentions have been devoted entirely to them during the past season. Buck of all kinds, especially, have been carefully avoided as their very numbers would be detrimental to sport, and it is no uncommon sight now to see the pack carry the line of a jackal without hesitation across the more recent spoor of a buck, disturbed by the passing chase.

Although by constant persecution the number of jackals round Salisbury have been greatly reduced since the early days when they were almost a plague and were poisoned like vermin, yet there are still plenty for the purposes of sport with hounds, as is proved by the fact that the Salisbury pack only once failed to find on a hunting day during last season, and that, too, without going more than five or six miles from town to draw.

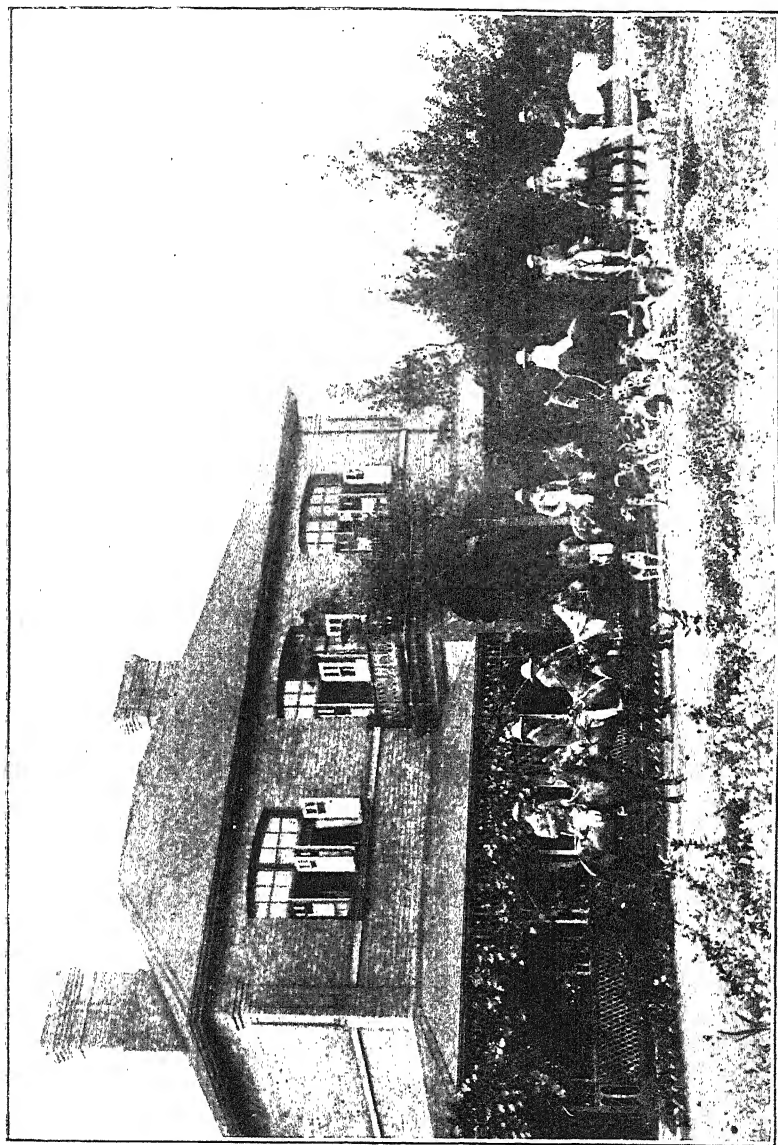
Whether total extinction of the jackal would benefit farmers generally may be doubted, for granting their partiality for poultry and green mealies, yet there is no doubt that they destroy a large number of field rats and mice as well as insects, and in this way assist in maintaining the balance of nature.

During the past season the sportsmen composing the field frequently numbered over 40 horsemen, and even if only few of these horses are kept for the sole purpose of hunting, the maintenance of a pack of hounds must tend rather to increase than diminish the demand for grain and forage in the neighbourhood.

It is satisfactory, therefore, to learn that the pack will not be dispersed upon Col. Chester Master's departure, as a Hunt Club has already been formed in Salisbury, with Mr. Newton, C.M.G., at the head of a strong committee, to take over the hounds and carry on the sport for another season at least.

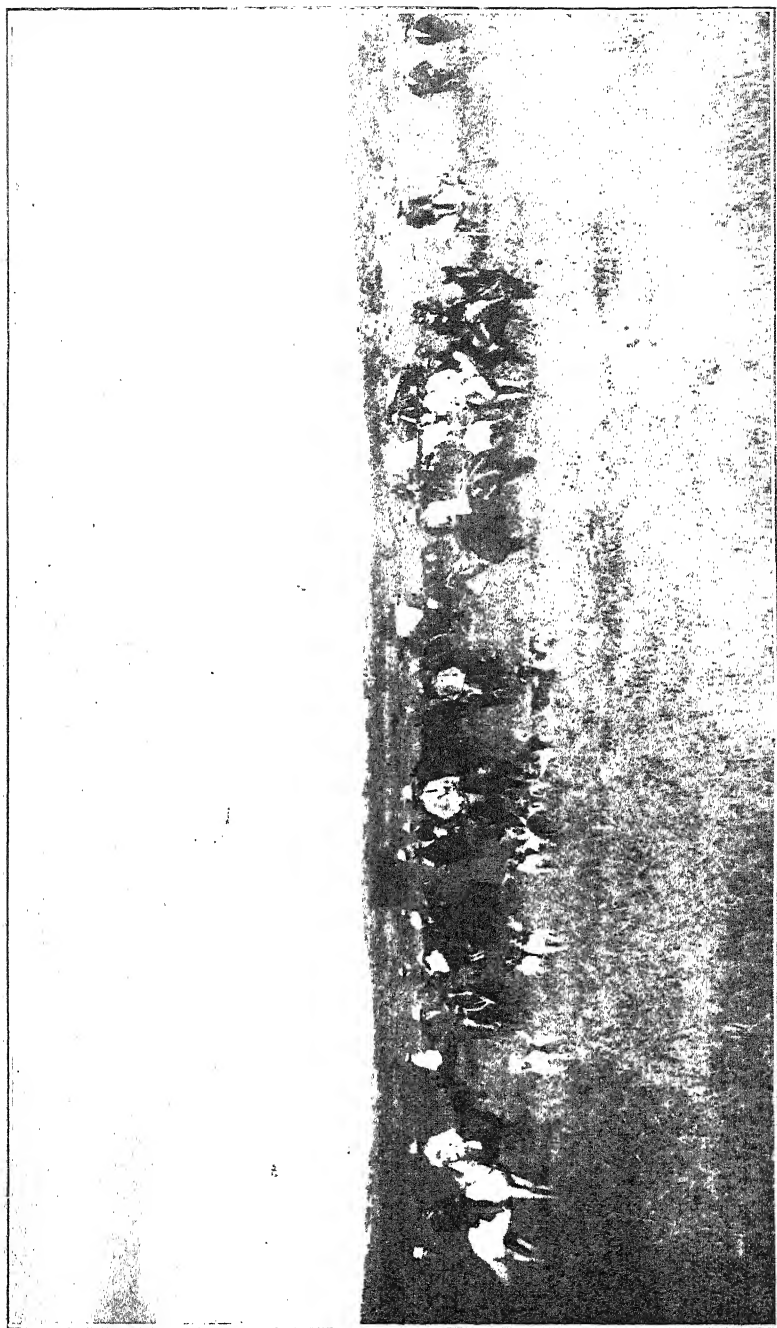
We learn, too, that recently a pack has been established in the Gwelo District, where it has been showing good sport.

We cordially wish them good luck and the best of sport.

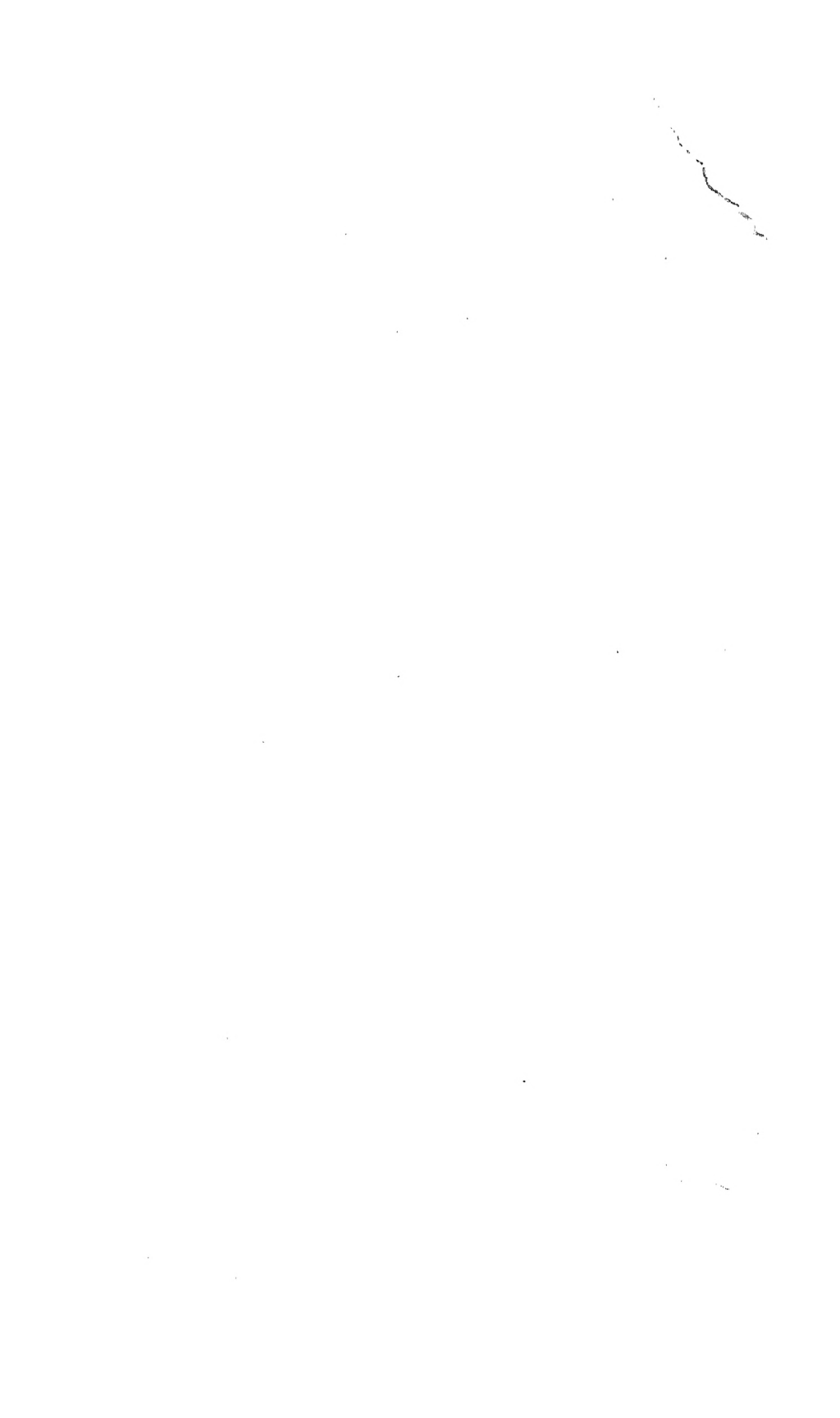


Salisbury Fox Hounds, The Residency, Salisbury.





The Salisbury Foxhounds, Meet near Salisbury.



## Grass Fires.

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Anyone who has travelled through Rhodesia from June to October cannot help being struck by the blackened aspect of the country, owing to the grass being burnt, leaving the soil bare and ugly for the eye to gaze upon.

Of the thousands who see it year by year, how many stop to consider, why is the grass burnt? and what benefit does the country gain by it? A slight study of the character of our climate cannot help bringing to one's notice the necessity that exists for finding grazing for stock in the winter, and the new-comer stares aghast at the practice of burning our pastures, thereby robbing ourselves of the food nature has given for a better purpose, which, if not of much use, certainly plays its part in the economy of nature.

From the many who advocate burning, and I am sorry to say they appear to predominate in this country, how often does one hear any tangible reason for the practice?

One will tell you it keeps away disease; another it kills ticks; and yet another say the green shoot which springs up after the fire does stock good.

I have never yet been able to find any veterinary surgeon who will tell you any disease is either cured or prevented by burning the grass, and as for ticks, allowing it might destroy a few, the time when most veld is burnt, is the very time the tick is securely snug in the ground, and the fire passes harmlessly over him.

One has only to quote the Salisbury Commonage which was regularly burnt year by year, and yet was about as bad a place as could be found in the country for ticks, until the East Coast Fever came, to be followed by dipping.

Of the so-called "green shoot" which springs up, certainly the cattle like it, and will walk miles picking up a blade here and a blade there, but on the other hand they are more liable to Gall Sickness and to eating poisonous herbs, and do not keep in as good condition as those on old grass, whilst it makes transport cattle unfit for work.

Anyone who has preserved grass, and will take the trouble to observe closely, cannot but see there is as much and more green shoot in the unburnt than in the burnt, but it is not seen owing to being practically covered

by the old grass. Again, if grass is burnt from May to August a shoot springs up which often dies away with the hot sun and winds in October, especially if the rains are a little late in coming.

From a scientific point of view it is well known that the soil loses most of its nitrogenous compounds by frequent burning and becomes poorer and poorer.

One of the great drawbacks to stock feeding in Rhodesia, *i.e.*, the large acreage taken to raise one head of stock, is that the grass does not cover the surface of the soil in a dense mat as one is familiar with in England. The unprotected condition permits the washing away of the best soil between the tufts or roots of grass, and to a large extent accounts for so much poor land. Annual burning aggravates this inasmuch as new young roots are retarded or killed by fire.

What farmer would think of planting mealies or tobacco in a soil devoid of humus? Yet every year we take away by fire the only means our grass lands have of gaining any. After all, what is the difference between a plant of wheat and a plant of Rooi Grass? Both to give the best results must have the required substances in the soil necessary for their growth.

The term grass is only another term for beef, mutton, bread, and clothing, or to quote the old saying, "No grass, no cattle; no cattle, no manure; no manure, no crops."

It is common opinion, and not without reason, that the old grass is useless and unfit for food. Granting that stock refuse to eat it, there is no reason why it should be burnt instead of being trodden down, combining along with the cattle droppings to form a good covering and dressing for the next crop of grass, which will appear just as soon on the land if left to nature.

It is a good system to feed down the veld as much as possible in patches which are wanted or known to provide winter feed. Keep the grass short by stock if possible until Christmas and then remove the lot. By this means the grass is given a chance to seed down, also send up fresh shoots before the rains are over, which comes in very handy the following July. It also gives the young roots a chance to get established, thereby forming a thicker turf and doing away with the tufty appearance of the raw veldt.

The majority of farmers have not enough stock to feed down their whole acreage during the early rains, but there is no reason why they should not take a portion and work on the system mentioned even if the rest is left with the so-called "rank coarse grass" to make humus for the next year. Anyone can see for himself the change that comes over the pasture when fire is kept off. Two or three seasons are enough, provided the farmer will take steps to properly protect it, but it is no use saving grass one year to be burnt the next. Pasture can be seen to change altogether from sour to sweet, keep green later, and become green earlier with no assistance but grazing and protection from fire.

I think few will deny that it is sport which is really the main cause. It is a custom which the native practised in Africa before the advent of the white man and carried on since; but at least the native is honest to his principles and acknowledges he burns to get rats and buck.

The locust plague, so bad the last two seasons, could be almost exterminated by burning, if done over the whole country at once and at the proper time, but such a scheme is impossible and so may be discarded as the one good reason for burning.

Stock, especially when herded by natives, have a habit of following each other, ultimately making a path which later becomes a water furrow, to be converted at some future date into a donga which carries off the rain as soon as it falls, very little penetrating the ground, lowering the water level, and withdrawing that supply of moisture so important in our long dry season. Can anyone doubt that the conditions are not aggravated by pasture which consists of tufts and roots only? The ash, which many consider a good result of burning, is carried away by wind or with the first storm before it can be of any real benefit. Anyone who has been in the Colony knows what serious loss these sluits cause by carrying away the best soil to the sea. Surely we who pride ourselves on being progressive farmers can take to heart their lesson.

At the meeting of the Directors with the farmers in Salisbury recently, this subject was brought up, and the fault was, I think, laid at every door but the right one. So long as a farmer burns his farm to procure a duiker, how can he expect the town sportsman or the native to desist.

In America and Australia the grass fire is relegated to its proper place, and Acts are passed to put the practice down as much as possible.

In the Australian Act of 1906 any person who ignites or uses any inflammable material or carries same when ignited within 100 yards of any stacks of corn, hay, etc., or within 10 yards of any growing crop or grass lands (the grass being in an inflammable state) and so endangering, injuring, or destroying the property of another, shall be liable to a maximum penalty of £50 or imprisonment not exceeding three months. In addition, any farmer wishing to burn off his scrub must do so between the hours of 5 p.m. and 4 a.m., with a fire guard of not less than 66 feet wide. Bush fire organisations are also in existence by which means any alarm of fire is got under before it can do much damage.

Much grumbling is heard from farmers who have had their grass burnt by others than themselves, but very little headway can be made either by laws or anything else until the agricultural community as a whole are convinced that in the native grass they have a real asset to be developed and cultivated, and are determined as a body to put grass fires down, beginning at home, by practising what later on they will preach.

OTTO ZIMMERMAN.

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## Destruction of Locusts.

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Extracts from the Report for the twelve months ending 31st December, 1907 :—

*General.*—The country was practically free of locusts during the months of January, February and March, except the remnants of last year's swarms, which had also disappeared by the middle of February; but towards the end of April telegraphic reports were received from stations on our Southern border of the approach of large swarms, which gradually spread over the whole country, and farmers with late crops had rather a bad time of it.

These locusts were mostly of the "*pachytylus migratorius*" (brown locust) type. Steps were immediately taken to locate their breeding grounds—but it was not until July and August that they deposited their eggs.

The first appearance of voetgangers was reported in Salisbury District on September 11th, about ten or twelve days after rain had fallen, and for the next two months reports came pouring in from all directions of abnormal numbers of voetgangers, and the position appeared to be alarming. It is somewhat strange that, although the rains were earlier in Matabeleland, the voetgangers, except in the Gwelo and Insiza Districts, did not appear there until November.

The "*acridium purpuriferum*," or red locust, has also been in evidence, but not to any very great extent. Reports received indicate that very few voetgangers of this type have been observed so far, and I am in hopes that they have selected some other locality beyond our borders in which to breed. The red locust, as compared with the other, does comparatively little damage to crops, as it is possible to keep him on the move, but the little brown gentleman stops where he settles, and no amount of persuasion will induce him to shift until he feels inclined to.

Those locusts that have already got wings appear to be on the "trek," and are apparently making for the South-West. Enormous swarms have been observed to be heading that way. Our efforts in dealing with the remainder are being backed up by locust birds (Great Stork or *Ciconia Alba*), which are in large numbers, and it seems probable that in a few weeks' time the country will be clear of locusts for the time being, although a few swarms of voetgangers here and there are still being reported. Such a satisfactory position two months ago was deemed hardly possible.

The locust birds are an important factor, and their presence is most providential; they have insatiable appetites, and account for enormous numbers of locusts; they follow up a swarm until it is exterminated. There are thousands of them in the country at the present time. Legislation was passed during the year, protecting these and other locust-eating birds—a wise and necessary step.

*Attitude of Farmers.*—On the whole the attitude of farmers toward the work has been apathetic, and in a few instances, I regret to say, antagonistic. Our locust officers were not allowed to spray on several farms. This was due no doubt to a fear on the part of the owners of having their stock poisoned, but it was, nevertheless, most discouraging to those charged with the work.

On the other hand, I have pleasure in placing on record the assistance afforded in many instances by the more advanced and progressive section of the farming community.

Every farmer who applied for a pump was lent one together with a supply of material and directions, and was asked to furnish information as to what he did. I am sorry to say that the number who complied with this request could be counted on the fingers of one hand, and in arriving at the number of swarms dealt with by farmers I have had to ask the Native Commissioners to give me estimates.

Unfortunately, there have been several accidents to stock through careless handling of the poison or by reason of the directions issued by the Department not having been adhered to, and I have to report the deaths of the following animals: 24 goats, 2 sheep, 2 donkeys and 25 cattle. It is alleged that these were poisoned by arsenite of soda.

*Measures adopted to destroy locusts.*—As soon as it became apparent that we were in for a visitation, steps were taken to appoint men at each of the fifty Police Stations as Locust Officers. These men were supposed to be struck off all police duty whilst so employed. Pumps and material were sent to each station, as advice was received that voetgangers were hatching out, or were likely to. Each Locust Officer was authorised to employ up to six natives, who were paid at the rate of 10s. per month and provided with food.

Ten special Locust Officers with transport and six natives each were despatched to wherever it was reported that locusts were in large numbers.

Sixty-three gangers on the Railway were each supplied with a pump and material.

Four hundred pumps, 20 tons of arsenite, 35 tons of sugar, and 1,500 feet of rubber tubing were imported, whilst there were also available from last year 210 pumps and  $1\frac{1}{2}$  tons of arsenite. All the pumps except 25, and about one-half of the poison and sugar were distributed to our Locust Officers, farmers, gangers on the Railway, and Native Commissioners, together with printed instructions as to use.

Instructions have been sent out that all pumps and remaining material are to be collected and stored—that is, in districts which have become free of locusts.

Undoubtedly the solution of arsenite of soda and sugar may be pronounced an unqualified success. Our Locust Officers without exception report most favourably on its deadly effect on the locusts.

*Results.*—Official information received from District Officials report the destruction of 11,109 swarms by means of arsenite of soda. Satisfactory as these figures are, they hardly convey an adequate conception of the work done, for some of the swarms included therein were of gigantic proportions, and could be measured by the mile. One Locust Officer in the Insiza District reports: "It is not a question of destroying so many swarms, but by the square mile of hoppers." The number of swarms destroyed is arrived at as follows:—Police, 6,295; Native Commissioners and Natives, 2,310; Farmers, 1,340; Special Locust Officers, 849; Railway gangers, 315.

Not included in the foregoing figures are the swarms destroyed by the burning of the grass, which in some districts was to some extent conserved for the purpose. It is impossible to arrive at any definite figures, but the number would run into thousands. A Locust Officer in the Enkeldoorn District, where the country was simply teeming with voetgangers, remarks: "I set alight to the grass, and so fired the country for miles wherever I saw voetgangers, and in this manner I destroyed more locusts in a short period than ten thousand natives armed with sprays could have done in a season." Of course this is far fetched, but there is a deal of truth in the statement.

Taking the swarms destroyed by means of arsenite and through the agency of fire, we arrive at the very

respectable sum total of 14,109. What the locust birds destroyed it would be interesting to know.

I have very little information to show what crops have been saved through the action of the Government in undertaking this work, but that it has had the effect of saving many crops is generally admitted. In the Headlands District I was informed by some of the farmers that had it not been for the material and assistance supplied, they would undoubtedly have lost their winter crops, which were of considerable value.

A conference of the members of the Inter-Colonial Locust Bureau was held at Pretoria on the 17th May. This Government was not represented, and an unfortunate and quite unjustifiable resolution was passed to the effect that the High Commissioner should urge Rhodesia to do her share in the work of destruction. This was subsequently expunged at our request, but the incident was mentioned even in foreign papers, and was the subject of a good deal of adverse criticism. This report should effectually dispel any lingering doubt there may be in the minds of the gentlemen who proposed and seconded the resolution, should they happen to see it.

In conclusion, I should like to make mention of the valuable assistance afforded by the Native and Transport Departments, and particularly by the B.S.A. Police.

WILFRED HONEY,

Assistant to Secretary for Agriculture.

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### **Some Insect and Fungus Diseases of Fruit Trees and Method for Prevention of Same.**

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In this article the more common insect and fungus pests only are mentioned, and the remedies so stated that the fruit-grower may see at a glance what to apply and when to apply it.

Spraying is no longer an experiment, but as much an accepted practice as cultivation, pruning, and manuring. It may not be necessary to spray every year, but the fruit-grower should be prepared to spray each year.

It should be remembered that in all cases success depends on the exercise of proper judgment in making applications. Plant diseases are rarely cured, but they can be prevented.

It is not possible to state exactly the time when the sprays should be applied, but the condition of the tree is generally given to act as a guide—for instance, some sprays must be used before the buds open or when the tree is dormant.

The number of times the spray should be applied must also be left to a large extent to the discretion of the fruit-grower, who can best judge the extent of the infestation after the first application.

When Bordeaux Mixture is used on the fruit, it will nearly always pay to add an arsenical poison.

Let the treatment in all cases be prompt, thorough, and persistent.

#### REMEDIES.

##### *Bordeaux Mixture :*

Copper Sulphate	..	..	..	6 lbs.
Quicklime	..	..	..	6 lbs.
Water	..	..	..	40-50 gallons.

Dissolve the copper sulphate by suspending it in a coarse cloth bag near the surface in 4 gallons of water, using a wooden or earthen vessel. Slake the lime in an equal amount of water. Then mix the two and dilute. Ready for immediate use, but will keep indefinitely.

Do not use air-slaked lime if it can possibly be avoided. If it is used, take greater quantities than of quicklime. Then, when mixture is made, insert in it the freshly-polished blade of a knife, and leave for a few minutes. If blade then shows coppery discolouration, more lime must be added.

Bordeaux Mixture and Paris Green may be applied together.

##### *Resin Wash :*

Water	.. 50 gals.	25 gals.	10 gals.	5 gals.
Resin	.. 12 lbs.	6 lbs.	$2\frac{3}{8}$ lbs.	$1\frac{1}{4}$ lbs.
Caustic Soda	$2\frac{1}{2}$ lbs.	$1\frac{1}{4}$ lbs.	$\frac{1}{2}$ lb.	$\frac{1}{4}$ lb.
Fish Oil	.. $1\frac{1}{8}$ bot.	$\frac{1}{2}$ bot.	$\frac{1}{4}$ bot.	$\frac{1}{8}$ bot.

Place soda and oil in kettle, cover with water and bring to a boil, then stir in powdered resin slowly, and keep the mixture well stirred till the resin dissolves. Cook for two hours, add a very little cold water if the liquid tends to boil over. When cooked add hot water to make up to fifty gallons. Use while warm. Will keep.

For all aphides dilute to 150 gallons.

This wash may be made with soft soap instead of fish oil.

#### *Lime Sulphur Mixture :*

Quicklime .. .. .	22 lbs.
Flowers of Sulphur .. .. .	20 lbs.
Water .. .. .	50 gallons.

Boil 6 to 8 gallons of water in kettle, and slake lime in this, then gradually add sulphur, stirring it in well and keep fire going. Boil for forty minutes, till mixture is dark orange colour ; add water to bring solution up to 50 gallons. Strain and use at once. Stir while using. Slake lime is sometimes used, but is less efficacious. Do not cook in copper vessel or spray with copper pump. Apply only to deciduous trees when the leaves are off. 15 lbs. of salt is sometimes added to this mixture.

#### *Paraffin Emulsion :*

-Soap .. .. .	1½ lbs.
Paraffin .. .. .	5 gallons.
Water .. .. .	2½ gallons.

Take whale oil or common bar soap, cut up and boil until dissolved in water. While still boiling add solution to the paraffin. Churn violently, five minutes if with pump or syringe, or fifteen if with paddle. Dilute, using one of emulsion to nine parts of water. Best if used warm. Will destroy aphides if diluted fifteen times.

#### *Paris Green :*

Paris Green .. .. .	1 lb.
Water .. .. .	200-300 gallons.

For delicate foliage add one or two pounds of quicklime. Stir continually when using. Use very fine spray.

*Arsenate of Lead :*

Arsenate of Soda	..	..	..	4 ounces.
Acetate of Lead	..	..	..	11 ounces.
Water .. .. .	..	..	..	15-20 gallons.

Dissolve arsenate of soda in two quarts, and the acetate of lead in four quarts of warm water, when dissolved add them to the desired amount of water. Better than Paris Green for very delicate foliage.

## SPRAY CALENDAR.

### ORANGE, LEMON AND ALL CITRUS TREES.

*Red Scale, Brown Scale, Mussel Scale.*—Unightly red scales on fruit, leaves and limbs. Spray in early March with Resin wash, and repeat spray two weeks later.

*Aphis.*—Black lice on young growth. Spray with Resin wash or Paraffin emulsion when they first appear.

*Caterpillar.*—Handpick if not numerous, or spray with Paris Green when first observed.

### APPLE.

*Codling Moth.*—Spray with Arsenate of Lead or Paris Green as soon as petals have fallen from flowers ; repeat every ten days, and then every twenty-one days.

*American Blight.*—Aphides or white woolly-looking lice on stem and roots. Spray with Resin Wash or Paraffin Emulsion.

*Borer.*—Dig borer out with knife or wire. Wax wounds. Remove surface soil and deluge roots with almost boiling water.

*Scab, Leaf Spot, Rust, etc.*—Spray with Bordeaux Mixture before buds open, and again two or more times after blossoms fall, about ten to twenty days apart.

### PEAR.

*Codling Moth.*—Same as apple.

*Pear Slug.*—Dark green or black slugs on foliage. Spray with Paris Green when slugs appear, and later if more appear.

*Red Scale, Greedy Scale.*—Greyish scale on limbs, often injurious to young trees. Spray with Lime Sulphur Mixture, or Resin Wash when trees are dormant.

#### PEACH OR NECTARINE.

*White Scale.*—Spray with Lime Sulphur mixture or Resin Wash (winter) when trees are dormant ; destroy young, which are reddish, with Paraffin Emulsion.

*Leaf Curl.*—Spray before buds open with Bordeaux Mixture or Lime Sulphur Mixture.

*Fly.*—Pick up all windfalls, and keep orchard well cultivated to expose maggots to birds.

Hang shallow tins containing kerosene from branches of the trees, to attract and destroy the adult fly.

#### APRICOT AND PLUM.

*Shot Hole Fungus.*—Holes in leaves, and spots on fruit and leaves. Spray with Lime Sulphur Wash when trees are dormant, and with Bordeaux Mixture when fruit is quarter grown if necessary.

*Fly and White Scale.*—As for peach.

*Pear Slug.*—As for pear.

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## The Conical Worm of the Paunch in Cattle.

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### “AMPHISTONUM CONICUM.”

By E. M. JARVIS, M.R.C.V.S.

The “*Amphistonium Conicum*” is a Trematode parasite (family Distomidæ) and is distinguished by the following characteristics :—

The body is thick, muscular, somewhat dense, ovoid, cylindroid, often curved, and two or three times longer than broad, bearing a grey or reddish grey colour. The front sucker is small, and has the mouth at the bottom. The second sucker, relatively very large, is placed at the hinder extremity, which is truncated obliquely on the ventral surface.

Several species live in the paunch of the ruminants, is occasionally met with in sheep and goats and various wild ruminants. It fixes itself by means of its posterior sucker, between the papillæ of the rumen, and more especially to the borders of the œsophageal furrow. It appears most frequently in the winter months in Rhodesia. The parasites are hermaphrodite and oviparous, the development being related to their metamorphosis and migrations.

In the uterus the ova undergo segmentation and not infrequently the embryo is even formed there. When they are laid, or have arrived in a moist medium, which is generally water, they continue their development, and at the end of a certain time there issue from them embryos. After a sojourn more or less prolonged in water these embryos have to enter the body of an aquatic creature, usually a mollusc: in this host they become germinative sacs and may engender others by fission or budding, but more generally produce new organisms in their interior called "*Cercariæ*," which are very like the original form, but have no genital organs and possess a movable bifid tail. These cercariæ escape from their host, swim or crawl in water, waiting for the advent of another aquatic animal, mollusc, worm, larva of an insect, fish or frog or may fix themselves on certain plants in the vicinity of their medium. They lose their tails, become encysted, and await to be carried into the stomach of a third host, the ox, which swallows the second. The latter is digested, and the parasite set free and proceeds to attach itself to the paunch (Newmann's *Parasites Macqueen*).

*World's Distribution.*—The parasites are known in Africa and Australia.

*Local Distribution.*—From personal observation, it exists on farms where rivers stand in pools, the water resting on an impervious rock base and dammed back by a reef wall. I have not seen any serious parasitic invasion in the sand veld where the water is constantly filtered through sand beds, but no definite statement that it does not occur in these localities can at present be stated until further facts have been accumulated.

*Treatment.*—The best treatment lies in precautionary measures. The animals should be watered preferably at a water trough filled with water raised from a well, or at the fountain head of a spring which is kept free of all vegetation, and a free run given to the flow of water.

In the medicinal treatment difficulties arise (1) from the fact that all liquids administered when the animals are on their feet do not gain entrance to the paunch in any quantity; (2) the drugs that will kill the parasites are mostly injurious to the mucus membrane of the stomach wall on account of the strength at which they have to be employed. There is a possibility of fumigation by chloroform vapour or carbon dioxide gas by means of direct insufflation or injection of liquid vermifuges into the paunch cavity with the aid of a canula, but such operations should only be performed by a Veterinary Surgeon.

### Correspondence.

[Messrs. Cookson and Selater have kindly consented to allow the following correspondence to be published in the Journal. The question of the commercial production of fibre is exercising the minds of many farmers at present, and the valuable hints contained in Mr. Cookson's letter will be of great value in deciding the nature of plant to grow for this purpose.

We hope to publish a series of articles on fibres by Mr. Cookson in subsequent numbers of the Journal.]

To J. Cookson, Jnr., Esq.,  
Brundret, Mazoe.

Dear Sir,—

I was extremely interested in your letter in the October "Agricultural Journal" as, being an old Ceylon planter, I am always keen to try new products.

I am now experimenting with Ramie Fibre; do you think this should pay to grow as a commercial product in Rhodesia?

I have also a few plants of Mauritius Hemp in my nurseries, which will be put out later.

There is a native fibre here called Nkungadzi, which grows in the form of a small bush about 18 to 24 in. in height, and produces from between the outer bark and the stem a long but extremely strong fibre, which the natives here use for making into a fine tambo for trapping birds; they also use it as a thread for repairing their clothing with.

Unfortunately, I had already sent away a large quantity I had, before seeing your letter in the October Journal, to the Curator of the Chartered Company's Museum in London, asking him to get it valued.

I will, however, get a further supply and forward to one of the firms you recommend in England.

There is also a tambo procurable in the Sabi Valley near here from the Baobab tree ; it is very strong indeed. Hoping to hear from you.

Yours truly,

A. L. SCLATER.

Helvetia, P.O. Chipinga,  
S. Melsetter, December 15th, 1907.

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To A. L. Sclater, Esq.,  
Helvetia, S. Melsetter.

Dear Sir,—

Replying to your letter of the 15th December, 1907, *Ramie Fibre* is one of the finest and strongest fibres ever produced. It is comparatively newly discovered ; five years ago it could not be worked at a profit, as there was neither machinery made suitable for decorticating the fibre, or machinery suitable for spinning and weaving same. Since I left England, four years ago, I believe machines have been made suitable for both purposes. Ramie requires, I believe, a rich alluvial soil, in a semi-tropical country, to grow well ; what the yield per acre is, or whether it will grow well in Rhodesia, will have to be proved by experimenting. It will certainly pay to ship to England, as it will always fetch top price in the fibre market. It is chiefly used for spinning into very fine cloth, so fine that it can take the place of silk, and it has almost everlasting wear.

*Mauritius Hemp*.—I have not much faith in this hemp, as it is one of the aloe tribe, and all aloe fibres are weak and brittle. It is perhaps the best aloe fibre put on the market, being of a beautiful white appearance. It is a coarse fibre and, therefore, used for cordage only, such as fancy clothes lines, etc., and to

mix slightly with fine white Manila hemp for improving the appearance and reducing the price of these ropes. Compared with the two principal coarse fibre grown for cordage purposes, which are known in the trade as Manila Hemp and Sisal Hemp, it is not classed at all. The total value of Mauritius hemp shipped home yearly is somewhere about £50,000, and the total value of either Manila or Sisal hemp runs over £3,000,000 for each annually, and the prices of Manila and Sisal hems are generally about £10 per ton higher than Mauritius. I believe that if large quantities of Mauritius were grown that there would be difficulty in selling it, and the price would fall from its present value of about £24 per ton to about £15 per ton.

I do not know the native fibre you call Nkungadzi ; it might possibly be of the Rhea family, but I can express no opinion till I have seen the fibre.

The Baobab tree makes a fair coarse cordage suitable for rope and paper making ; there is a small trade in this going on now from the West Coast of Africa. Of the native plants I have seen, the ordinary Dagga is the one which should, I think, be experimented with seriously ; it is the true hemp plant, and if the stalks are cut down and retted at the right time will, I believe, produce a very fine fibre, which will pay very well ; if the fibre of this turns out as strong as the same plant grown in Italy and Russia, there is a fortune in it.

Yours faithfully,

J. COOKSON, JNR.

Brundret, Mazoe, 16th January, 1908.

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TO THE EDITOR, " AGRICULTURAL JOURNAL."

Dear Sir,

Perhaps, if you would be good enough to publish this letter in your ensuing number, it may meet the eye of someone who could advise us in the following trouble :—We have lost six calves during the last two months, all having died of " Hair Balls " ; some of them were the size of a large orange.

The calves were from six weeks to three months old, in good condition, and the two younger ones had never been out to grass.

Yours faithfully,

BREBNER & SELFE.

Ishabalala Farm.

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## A PLEA FOR EXTENDED CULTIVATION IN RHODESIA.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

Dear Sir,—

Can the farmer get rid of his surplus crops of mealies in the future, and be independent of the mines and wholesale produce merchants? Has the old order to stay, in which we farmers are told that unless the mining industry goes ahead the farmer cannot live in this country? Has any country in the world's history ever done any permanent good by mining alone, and are not the wealthiest and strongest countries of to-day those that have fostered their agricultural interests till they are in an absolutely firm position? There has been seventy million pounds sterling spent in Rhodesia in seventeen years, chiefly on mining, and practically nothing so far on agriculture; if one-third of this sum had been spent on agriculture, would this country to-day be going through the financial crisis it is?

What has been the principal cause of this state of things this year? The large mines have turned out as much gold as in past years, and the small mines (tributors) have turned out far more, and show in figures what the individual worker can do.

The only other industry of importance is agriculture. Now, how has the farmer caused this state of affairs? Simply this. Practically the only crop a farmer grows here at present is mealies, which have worked out at a loss, not a profit, to him this year, and I suppose, instead of the farmer paying out in the aggregate some £200,000, he has practically paid out nothing and is in worse debt than before. The price of mealies, as everyone knows, has this year varied from 7s. 6d. to

8s. 6d. per bag delivered in Salisbury ; the farmer has not been allowed to use his own oxen for transport, but has had to hire donkey or mule transport, often at 3s. per bag. The sack has cost him practically another 1s. each, which leaves the farmer a gross profit of 3s. 6d. to 4s. 6d. per bag which, after his expenses are taken off, has often worked out at a dead loss. In previous years the farmer has had a gross profit of from 10s. to 15s. per bag. Now comes the point. What are the farmers to do in the future ? Can the surplus crops of mealies be sent out of the country at a profit, and thus stop the flooding of this small local market ? The roads are now open for our oxen, and it will cost us less than 1s. per bag to deliver into Salisbury next year. Mr. Birchenough practically promised us a rate of 2s. per bag from Salisbury to the wharf in London. Surely this can be carried through definitely ; freights are cheap enough, and 1s. per bag from Beira to London ought to pay the shipping companies, and surely 1s. per bag will pay the railway company from Salisbury to Beira, as it is all practically down hill, and at present the trucks are going back empty. Now what price can we hope to get in London ? Natal mealies at present are fetching 28s. per quarter of 480 lbs. net, or 11s. 8d. per bag of 200 lbs. net, delivered to the wharf ; this price, less 2s. for carriage and freight, leaves 9s. 8d. net cash at Salisbury Station for the farmer. Is this price of 28s. per quarter likely to remain ? I do not think there is any doubt that it will last twelve months at least.

The crops of mealies and wheat are both very short in America, and shorter still in the Argentine, and it is more than probable that this latter country, which has been the chief source of supply for England and the Continent, will not have the crops it has had in the past owing to the change in the cyclones, which is going to give South Africa better rainfall for the next twenty-five years, and probably less in Australia and the Argentine.

Again, the mealie to-day is being more and more used for outside purposes. Oil for smokeless powder and alcohol for agricultural machinery ; this latter industry will probably consume vast quantities. Also wheat crops being short, more mealies than ever will

be mixed with ordinary flour. Even if mealies in future years do drop to 19s. 6d. or 20s. per quarter in London, it will still leave 6s. 4d. net cash at Salisbury Station, which is quite good enough for getting rid of surplus stocks, when we have increased our crops and acreage.

The Natal mealie is the best mealie ever put on the London market, and Rhodesian farmers can, I believe, put an even better one there with a little more care.

Natal will this year receive £200,000 for mealies shipped to London, and next year probably £500,000. It is time, therefore, we woke up here. Mazoe district alone is capable of producing 100,000 tons of mealies per annum, and other districts are just as good. What will have to be done in Rhodesia is the same as in Natal, and the mealies to be shipped must be graded into qualities, and this is where the Chartered Company must help us. A Government official ought to be appointed to grade these at Salisbury Station and attend to the shipment of same, just the same as in Natal; the best mealies then get the best price, and we do not ruin our market in England by getting a bad name.

I have dealt at length on the mealie as this is certainly the main crop of the country. Other cereal crops we know little about at present in Rhodesia; they have got to be proved, but they will undoubtedly come in time. Tobacco is now a proved success; this industry is sure now to go ahead in leaps and bounds. Citrus growing (oranges) is also a proved success; these can be shipped to England at a good profit, if only the Chartered Company will provide proper railway rates.

These three crops alone are sufficient to make agriculture go ahead in Rhodesia, always provided we can export them.

Let agriculture be more thought of and let it come more to the front, and let it pay its own way by competing with the world, and let us stop this nonsense of being dependent on the mines.

Most mines in this country have a few years' life at most, and we cannot carry our farms about and dump them down outside a mine.

J. COOKSON, JNR.

Brundret, Mazoe, 1907.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

Dear Sir,—

I shall be much obliged if you will make as public as possible the following information, at the same time asking for the co-operation of fruit-growers in Rhodesia and other parts, to carry out their own experiments and to publish same.

A few weeks ago Mr. Hulley, Inspector of Natives and Assistant Magistrate for the Umtali District, whilst calling here, mentioned that he had been destroying large numbers of small flies in his fruit garden with the aid of an old vinegar barrel ; a description of the fly at once convinced myself that it was the true fruit fly, so we both agreed to carry out experiments. Mr. Hulley has been since patrolling his extensive district, but the results I have attained justify me in writing you at once. Owing to continuous rains I was unable to place tins in the fruit trees, but I placed sardine tins containing vinegar, with other tins containing kerosene on either side of the vinegar tins, in the fruit house, where there are always a certain number of flies hovering about the fruit stored therein. On examining the tins 24 hours afterwards, I found 17 fruit flies in the vinegar tin and only 5 flies in the two tins containing kerosene, and ever since the same average has been more or less kept up. I found that after a few days, when the strong smell of the vinegar disappeared, that it seemed to lose its attraction for the flies, but whenever fresh vinegar was restored, flies were quickly destroyed. If kerosene is considered a successful method of combating the depredations caused by the fruit fly, then, in my opinion, vinegar is far superior, and if by placing a few upstanding barrels here and there amongst the trees, one can successfully keep under the flies, it will be a much simpler method than that of placing tins containing kerosene in every tree, which must be done to be at all effective. I trust before long Mr. Hulley may write giving his own experiences, and that some of the Salisbury fruit-growers may try the respective value of kerosene and vinegar in their fruit trees.

I am, Sir, yours truly,

FRED E. WIENHOLT.

Rhodes Inyanga Farm, Umtali,  
January 18th, 1908.

[Such a valuable and simple remedy for destroying the fruit fly, as described in Mr. Wienholt's letter, is well worth the trouble involved in testing its efficiency, and fruit-growers are particularly requested to record the results obtained, and to forward them for publication in the Journal. The relative value of these two liquids, both easily obtainable, in attracting the fruit fly, is of great importance, for before this particular bait had been discovered, there was no really effective remedy known for this pest, and the damage done by it was enormous.—EDITOR.]

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## Specification for Government Fence, Transvaal.

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*Strainers.*—To be hard wood 7 ft. 2 in. in length, not less than 6 in. in diameter at small end, and sufficiently straight to allow of all wires being in perpendicular line when passed through holes bored as near the centre as possible, to be three feet in ground and stayed while straining. To be bored with  $\frac{5}{8}$  (five-eighths inch) bit for all plain wires and  $\frac{3}{4}$  in. (three-quarter inch) bit for all barbed wires; and wires to be run through tightly strained and fastened to same wire round strainer with not less than four turns round wire; a proper key to be used in fastening.

All corner posts to be strainers.

No strainers to be more than 352 ft. apart. All corner posts to be stayed on both sides. All bark to be removed and tops sawn off or cut square.

*Standards.*—To be of iron, 14 or 16 lbs. in weight, 6 ft. long, to be driven to a depth of 2 ft. in the ground, to be erected from strainer to strainer in a straight line, five standards between strainers. Standards between strainers to be 58 ft. 8 in. apart, and the standards on either side nearest the strainers to be not more than 58 ft. 8 ins. apart from such strainer.

*Droppers.*—Droppers to be properly attached to wires, to be four droppers between standards or between standard and strainer as case may be.

Droppers to be 11 ft. 9 ins. apart.

*Wires.*—To be not less than four in number. Top wire to be barbed, next plain, next barbed, next plain; any more than four to be plain wires, and all wires to be run through strainers. All plain wires to be run through all standards, to be also run through all droppers unless droppers are made for patent attachment, barbed wires to be attached to standards by means of a wire run through standards and attached round barbed wire, to be attached to all droppers in like manner unless droppers are made for patent attachment.

All wires to be spliced where necessary with the figure "8" knot, and to be strained tightly.

*Gauge.*—To be of standard supplied.

*Stays.*—To be 10 ft. in length of hard wood, to be morticed into corner posts 3 ft. from top to a depth of 2 ins., the other end of stay to be embedded firmly in ground along fence line, to be bored, and all plain wires run through before fastening to strainers; all bark to be removed.

*Gates.*—To be erected where necessary, to be swing gates giving an opening of 15 ft. clear; to be hung on strong posts erected for the purpose, not on to the strainer.

## POST FENCE WITHOUT DROPPERS.

*Strainers.*—To be of hard wood 7 ft. 2 ins. in length, not less than 6 ins. in diameter at small end, sufficiently straight to allow of all wires being in perpendicular line when passed through holes bored as near the centre as possible, to be 3 ft. in ground, stayed while straining. To be bored with five-eighths inch bit for all plain wires, and three-quarter inch bit for all barbed wires, all wires to be run through and tightly strained, and fastened to the same wire round strainer, with not less than four turns round wire.

All corner posts to be strainers, and to be stayed on both sides, every 20th post to be a strainer. All bark to be removed and to be cut off square on top or sawn.

Posts to be of hard wood, not less than 4 ins. in diameter at small end, and to be sufficiently straight to allow of all wires being in perpendicular line, when passed through holes bored as near the centre as possible; to be 6 ft. in length, to be 22 ins. in ground and well rammed; to be bored with five-eighths inch bit; to be erected in

straight line from beacon to beacon; to be 12 ft. apart. All bark to be removed; tops to be 12 ft. apart. All bark to be removed; tops to be cut off square or sawn.

Wires to be not less than four in number. Top wire to be barbed, next plain, next barbed, next plain, any more than four to be plain wire; all wires to be run through strainers, all plain wires to be run through all posts, barbed wires to be attached by means of binding wire, binding wire to be run through post and attached round barbed wire.

All wires to be spliced where necessary with the figure 8 knot, tightly strained and securely fastened with four turns round the wire.

*Gauge.*—To be Government gauge, viz.: Top wire 4 ft., next 2 ft. 11 ins., next 2 ft. 1 in., next 1 ft. 6 ins. from ground; if more than four wires, next to be 1 ft., next 6 ins. from ground.

*Stays.*—To be 10 ft. in length of hard wood, to be morticed into corner posts, 3 ins., from top to depth of 2 ins. The other end to be firmly embedded in ground along fence line. To be bored and plain wires run through before fastening to strainers. Bark to be removed.

*Gates.*—To be erected where necessary; to be swing gates with opening of 15 ft. clear. To be hung on strong posts, specially erected for purpose.

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## Land for Settlers.

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Land in Southern Rhodesia can be obtained from the British South Africa Company under Permit of Occupation, subject to occupation and other conditions, with option of purchase by instalments.

Applicants must be able to satisfy the Company that they possess sufficient capital or farming assets in the way of implements, stock, etc., available for use in this country, if they wish to take up a full-sized farm, and a proportionate amount for smaller areas—£300 to £500 is required, or assets to that value.

Farms in Mashonaland are usually 1,500 morgen, and in Matabeleland 3,000 morgen.

## TERMS ON WHICH LAND CAN BE OBTAINED.

The terms upon which land can be obtained, as published in previous leaflets and handbooks, have been revised, in order to give greater facilities to the settler. The general conditions are as follows:—

1. A settler may become the owner of a farm—(a) on payment of purchase price, subject to terms of occupation; or (b) after five years' occupation, the price being fixed at the commencement of the tenancy. During this period he will pay an annual rent calculated at five per cent. on the purchase price, but no payment will be demanded until the end of the second year's occupation of the farm, the first year's rent being spread *pro rata* over the second and subsequent years of the tenancy.

2. The tenant must actually and continuously occupy his farm, either personally or by a European substitute to be approved by the Company, and must carry out *bonâ fide* farming operations, by cultivation or with stock, as follows:—

- (a) by the cultivation of two morgen of land for every one hundred (100) morgen of the said farm; or
- (b) by the maintenance of two head of cattle or ten head of small stock, comprising sheep, goats and pigs for every one hundred (100) morgen of the said farm; or
- (c) by the performance of a proportionate part of sub-sections (a) and (b) above.

3. A rebate of five per cent. upon the purchase price of farms will be granted where improvements have been carried out to the satisfaction of the Company in the following directions, viz.:—

- (a) for every five miles of permanent fencing (iron or iron and wire) erected;
- (b) for every 10,000 forest trees, of approved varieties, not less than ten feet high;
- (c) for every 100 morgen of land which has been under general cultivation for not less than three years.

The rebate made, however, will not exceed twenty per cent. in all.

4. At the end of the five years of occupation, provided the tenant has carried out the general conditions of his Permit of Occupation, he may purchase the farm, paying the price fixed at the commencement of his tenancy: if he wishes it, the payment will be extended over a further five years, and be payable in ten half-yearly instalments, plus 5 per cent. interest on the unpaid balance.

5. If the tenant at the end of the five years' tenancy does not wish to purchase the farm either outright, or in instalments as above, he may continue his tenancy for a further five years, subject to the same covenants, at an increased rental equal to  $7\frac{1}{2}$  per cent. on the purchase price. At the end of the second period of five years, the option to purchase under the original agreement will cease, if not exercised.

6. At any time during the second period of five years, whether the tenant is paying instalments of the purchase price or continuing his tenancy, he may pay off the whole amount of the purchase price and become the owner of the farm. Title will only be granted when the whole purchase money has been paid.

7. Title may be obtained before the expiration of the five years' occupation period, on payment of the purchase price, whenever, in the opinion of the Company, a settler has expended a sufficient sum in permanent buildings or works on a farm to ensure its future occupation.

8. After obtaining title, the purchaser will have to pay Quitrent, which is an annual charge of 1s. per 25 morgen\* or part thereof. Thus, assuming a farm to be exactly 1,500 morgen in extent, the owner must pay an annual sum of £3 7s. 6d., which includes Stamp Duty on the quitrent receipt.

9. Should the settler not avail himself of the option of purchasing, and surrender the farm, compensation will be paid by the British South Africa Company at the termination of the original period of five years, or on the subsequent surrender of the farm, to the amount of 75 per cent. of the then value of any permanent buildings and works on the farm, which have been erected or carried out with the prior written sanction of the Company. The amount

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\* A morgen is approximately equal to 2½ English acres.

of compensation to be paid shall be calculated only upon such expenditure as the Company may have previously authorised in such written sanction.

10. The price of land varies according to its locality, *e.g.*, proximity to railways, towns, mines and other markets, and to its general characteristics. At present the price of unimproved farms is from about 1s. 6d. to 8s. a morgen, the former being the minimum for stock farms. In some special cases where areas of irrigable land are suitable for dividing into small holdings for more extensive cultivation, the price is naturally higher. Each farm is valued prior to occupation, and the price, which includes cost of survey, is fixed after a careful inspection of the quality of the land, etc.

11. Applications for land in Southern Rhodesia should be addressed to the Secretary, Estates Office, Salisbury, Rhodesia. Such applications, which must be in writing, will be dealt with in the order in which they are received.

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### **Land Settlement Areas and Central Farms.**

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1. Farming, like any other business, requires learning, and even if the settler has had experience of farming in another country, there is much knowledge which he would find necessary to acquire on taking up a farm in Rhodesia, unless his experience has been gleaned in some other part of South Africa, though even in this case he will find conditions somewhat different.

2. Unless a man is prepared to buy this knowledge dearly, it is advised that he should work for a year, or longer if necessary, with a Rhodesian farmer or on a settlement where he may acquire experience.

3. With the object of assisting newcomers in this way, the Company has established Central Farms at Marandellas, and at the Premier Estate near Umtali, where approved settlers will be taken for a year or so to learn local conditions of farming before taking up farms of their own. Only a limited number of men can be taken upon these Central Farms, but each year as settlers gradually move on to their own farms a further number will be provided for. In addition to working

on the Central Farms settlers will be employed in the development of surrounding farms, particularly on those which they will eventually take up. It is further contemplated that after men are established on their farms they will be glad to take others to assist them and learn from them, and in this way it is hoped that the settlement of the land will rapidly develop itself on the snowball principle. A limited number of these men will be taken on the Central Farms, and as soon as they prove worth it, will receive board allowance and lodging free, in return for their work; settlers to provide their own blankets and linen. Those who are taken on over and above the number that can be usefully employed, must pay for their board, though they will be given their lodging free. As the former are gradually placed on farms, the latter, as soon as they prove capable, may take their places.

4. A man going out to a Central Farm has, firstly, a place to go to on his arrival in the country where he can acquire knowledge of Rhodesian farming conditions at a minimum of expense to himself, and, secondly, he is able to take up a farm on a "Settlement" as one of a community, instead of being isolated, though he can take up a farm elsewhere if he prefers to do so. If, however, he takes up a farm on a "Settlement" he can obtain live stock and the use of stud animals from the Central Farm, and he will also share the benefits of co-operation which it is intended to promote in as many branches as possible.

Applications for land in Southern Rhodesia should be addressed to the Secretary, Estates Office, Salisbury, Rhodesia. Such applications, which must be in writing, will be dealt with in the order in which they are received.

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## **Epitome of Cattle Inspectors' Returns.**

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NOVEMBER, 1907.

SALISBURY.

No diseases amongst stock to report.

## BULAWAYO.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: One death occurred at Mzingwani sick camp. All herds outside the area have been tested, proved healthy, and driven outwards. The fencing of an extension to the area is now in progress.

## UMTALI.

### *Scab.*

One outbreak of scab has occurred.

## GWELO.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

## VICTORIA.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

### *Horse Sickness.*

One animal died.

## MELSETTER.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

## ENKELDOORN.

### *Scab.*

One outbreak amongst native sheep.

DECEMBER, 1907.

## SALISBURY.

### *Redwater.*

Three outbreaks of this disease occurred, two of which were amongst calves, several deaths resulting. The third outbreak was amongst cattle imported from non-Redwater area in the Cape Colony. Ticks are very much in evidence this year.

## BULAWAYO.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: Three deaths from Coast Fever occurred at the sick camp, Mzingwani, to which two suspicious cases were also removed. Unfortunately one of the fenced paddocks which was thought clean and cattle placed therein has proved to be infected, and the animals had to be placed into another area just fenced.

### *Glanders.*

The following animals have been tested with Mallein and found healthy:—Horses, 51; Mules, 87; Donkeys, 85—total, 223.

## UMTALI.

### *Poisoning.*

Some cattle on a farm close to Umtali presented rather unusual symptoms for this part of Rhodesia. The Government Veterinary Surgeon made an examination and found the following symptoms:—Unthrifty appearance, coat staring, impoverished condition in the whole herd whilst in the midst of plenty, no temperature, dull and depressed, giddiness, delirium, sometimes coma, faces almost black with strong odour.

### *Post-mortem Appearances.*

No lesions excepting cirrhosis of the liver, gall viciid and dark.

### *Microscopical Examination.*

Blood smears and scrapings from intestine gave negative results.

The animals are and have been feeding in old Kafir lands full of weeds, amongst which are growing what is believed to be the Ragwort plant.

The opinion expressed so far is that the animals are suffering from Cirrhosis of the liver caused by eating the Senecio plants.

*Horsesickness.*

One uninoculated mule died from this disease.

*Scab.*

Eighteen flocks remain under licence.

GWELO.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths or sickness during the month at the Selukwe Quarantine Area.

VICTORIA.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths amongst the cattle in quarantine or sickness.

MELSETTER.

*African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

ENKELDOORN.

*Scab.*

Five flocks are in quarantine for this disease.

*Horse Sickness.*

Three deaths, one horse and two mules.

J. M. SINCLAIR,

Chief Veterinary Surgeon.

## **SOUTH AFRICAN STUD BOOK.**

**A** RECORD of all classes of Stock, the object being to encourage the breeding of Thoroughbred Stock and to maintain the purity of breeds, thus enhancing their value to the individual owner and to the country generally.

Applications for Membership and entries of Stock should be addressed :

For Cape Colony to—

J. PIKE, P.O. Box 703, CAPE TOWN.

For Transvaal to—

F. T. NICHOLSON, P.O. Box 134, PRETORIA.

For Orange River Colony—

E. J. MACMILLAN, GOVERNMENT BUILDINGS,  
BLOEMFONTEIN.

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J. PIKE,

Secretary South African

Stud Book Association.

## Merino Wool and Mohair.

The following report is on some mohair grown in the Gwelo district, and merino wool grown in the Melsetter and Inyanga districts:—

I am directed by the Marquess of Winchester to inform you that the sample of mohair which you handed to his Lordship was submitted to Messrs. Windeler and Co., Wool Brokers, 20, Basinghall Street, E.C., on December 6th, for report and valuation. I am glad to inform you that the sample in question was reported to be of a very desirable class of mohair, and compared very favourably with what is known as "Cape Super," the following being the prices quoted:—

Rhodesian Mohair from Mr. Trollip ...	13d. per lb.
Cape Super Mohair ... ..	13½d. per lb.

Messrs. Windeler state that this class of mohair is in demand on the London Market, but care must be observed in the grading, and they hail with delight the prospects of wool and mohair coming from Rhodesia.

The bales of wool from the Rhodes Farm, Inyanga, and another lot from Melsetter, together with other samples which have in the past been submitted to Messrs. Windeler, either for sale or report, convince them that some of the districts in Rhodesia are admirably suited for woolled sheep.

The following report by Mr. T. H. Moore, Wool Merchant, Huddersfield, and Mr. Byron C. Ronald, Wool Broker, London, on wool which this Company exhibited at the South African Products Exhibition will, I feel sure, interest you:—

"The few samples exhibited are of interest as showing what can be done in this new Colony. The wool is quite equal in quality to the average of the other Colonies, and it is equally soft and possesses the same excellent spinning properties. It is deficient in length, but it is quite sound. It contains a large amount of dust and veld, but it is not too heavy in grease. We presume that for a first experiment the owners would not be over anxious to sink money upon a high-class sheep. The fact that such satisfactory results have been obtained from what we

imagine were ordinary flock animals is distinctly encouraging, and would justify an outlay upon a higher class of sheep selected with a view to producing wool which could take its place amongst the best of the other Colonies. The country is evidently suited to the merino, and to experiment with crossbreds would probably give unsatisfactory results. A pure-bred merino, densely woolled so as to resist the penetration of dust, long stapled and not too fine in the hair, is the class we would recommend. The tendency in South Africa is for the wool to get firmer and shorter. If year by year rams were selected which most resisted this tendency, and the flocks periodically reinvigorated by the importation of robust blood, we think the extensive sheep tracts in Rhodesia should eventually produce as good results as any other in the world in the same latitude."

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## Government Notices.

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No. 42 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 28th February, 1907.

### RABIES.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904, may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcasses of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

No. 228 of 1907.

## RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after the 1st November, 1907, the following regulation shall have full force and effect in addition and supplementary to the Regulations proclaimed by me under Government Notice No. 42 of 28th February, 1907.

14. Notwithstanding the provisions of Section 7, the following classes of dogs shall be allowed to go unmuzzled subject to the conditions respectively set forth in each class.
- a. Pointers, Setters, Spaniels, and all such sporting dogs, when being *bona fide* used and at work before the gun, and under the ordinary supervision and control of persons in charge of them, carrying guns for the shooting of game.
  - b. Packs of Foxhounds, Harriers or Beagles, duly registered as such before the Resident Magistrate of the District in which their owner or owners reside, when under the ordinary supervision and control of not less than two persons engaged in the chase.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator.

F. J. NEWTON,

Treasurer.

No. 91 of 1907.

## "GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds:—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glaricola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

No. 237 of 1905.

## GAME LAW CONSOLIDATION ORDINANCE, 1905: CLOSE SEASON, &amp;c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof:—

## CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.
2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.

3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned :—

- (a) Oribi, within the magisterial district of Charter.
- (b) Grysbok, within the magisterial district of Bulawayo.
- (c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.
- (d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melsetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C," except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary :—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows :—

On the North and West by the River Zambesi, starting at the point where the Loenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanyati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaodsa Rivers to the headwaters of the Loenzi River and thence along the course of the Loenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaodsa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

#### SCHEDULE

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umwezwe Bridge, thence along the Umwezwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 188 of 1906.

26th July, 1906.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.

2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions :

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained ; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.
- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (e) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
- (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.
- (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive ; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.

5. The movement of working cattle may be permitted under the following conditions only :—

- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it

conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.

- (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided:—

- (a) That such movement shall be to nearest available pasturage by the most suitable route.  
 (b) That written consent be obtained in terms of Section 4 (b) hereof.  
 (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.

7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.

8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.

9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.

10. All veld-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank:—

For cattle (over six months) .. .. .	3d. per head.
For horses and mules .. .. .	3d. „
For calves (six months and under) .. .. .	2d. „
For small stock .. .. .	½d. „

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umvutcha, Reigate, Upper Nondwene, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umvutcha.

No. 216 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 10th October, 1907.

#### AFRICAN COAST FEVER.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw Sub-section (b), Section 5 of Government Notice No. 188 of 1906, and declare the following to be of full force and effect in lieu thereof:—

Within the said area from private farms and trading stations to any centre of consumption, or to a railway station or siding, or to and from any other farm, or from a mine to a railway station or siding for the purpose of transporting fuel or mining timber, under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed; provided that no permit shall be issued until the person applying for the same shall produce the written consent of the owners, occupiers, or managers of occupied lands proposed to be traversed, and, in the case of native reserves, of the Native Commissioners, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner, and to the satisfaction of the officer issuing the permit; provided further that, in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 217 of 1907.

Department of Agriculture,  
Administrator's Office,

Salisbury, 10th October, 1907.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw as from the 1st October, 1907, the regulations promulgated by Government Notices No. 189 of 1906 and No. 185 of 1907, and declare that the following shall be of full force and effect in lieu thereof from that date within the province of Mashonaland and the fiscal division of Gwelo, as defined by the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which areas are hereby declared to be areas infected with a destructive disease:—

1. The movement of all cattle within the said area is prohibited save and except:—

- (a) On permission granted by an officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within any area of land enclosed by a substantial fence.
- (d) Within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp.
- (e) Within a radius of four miles of any native kraal situate within the boundaries of any native location or reserve, the site of such kraal shall be deemed to be the place where it is situated at the date of publication hereof, and as is further provided.

2. The movement of cattle for slaughter purposes shall be permitted under the written authority of an officer thereto duly authorised, subject to the following terms and conditions:—

- (a) That such cattle are moved by the most suitable route to the centre of consumption. All cattle travelling by road to be under the personal supervision of a responsible white man, or native approved of by the Cattle Inspector.
- (b) That before cattle may enter from a native district not included in any particular group of districts as defined in Section 6 (b) the written permission of owners, occupiers, or managers of all occupied land, and, in the case of native reserves, of the Native Commissioner of the district over which such cattle shall pass to the nearest station, siding, or centre of consumption is obtained; provided that in the event of such owners, occupiers, managers, or Native Commissioners refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall, on arrival at the centre of consumption, subject to the terms of clause (d) hereof, be immediately taken to the prescribed quarantine area, and there be quarantined and confined, and branded with the letters "V.D." on the near side of the neck under the supervision of a duly authorised officer.
- (d) That all cattle brought into any centre of consumption shall be disinfected by dipping or spraying at the public dipping station before being taken to the quarantine area.
- (e) That all cattle admitted to the quarantine area shall be slaughtered within 21 days of their admission, and only be permitted to leave the area for the purpose of being driven to the abattoir for slaughter. All such cattle shall, after admission to the said area, be considered as likely to be infected with disease, and, if found wandering outside the said area or in possession of any person, may be destroyed under an order of the Chief Inspector or Controller of Stock.

- (f) That intermediate depots, or concentration camps, for slaughter stock may be allowed at centres approved of by the Chief Inspector of Cattle, provided that no such camp shall be situated within less than a radius of five miles of any commonage, town lands, or grazing ground common to any mining camp, railway station or siding.

3. The movement of cattle required for *bona fide* mining, farming, breeding and dairying purposes and for private milk supplies may be permitted on the written authority of a duly authorised officer, subject to the following terms and conditions :—

- (a) That such movement shall take place subject to the conditions set forth in Section 2 (a) and (b).
- (b) That whenever such cattle shall at any place along the route have passed within a radius of less than five miles of an infected area, the cattle shall upon arrival at their destination be effectually isolated from all other cattle on the same land for a period of four weeks.
- (c) That whenever the cattle being removed shall at any portion of the route have passed within native districts where infected areas exist, the consent in writing to such movement be obtained from all owners of cattle on farms adjoining that to which movement takes place ; and in the case of native reserves of the Native Commissioners of the districts ; provided that should such consent be unreasonably withheld by any of the aforesaid persons the Controller of Stock may direct the issue of a permit.
- (d) That such cattle required for breeding and dairying purposes, or for private milk supplies, when moved to within the boundaries of the various commonages, town lands, or of grazing ground common to any mining camp or other centre where cases of African Coast Fever have occurred within 15 months, shall be confined in some enclosed place approved of by the local Cattle Inspector, and, if a case of African Coast Fever occur in such enclosure, shall not be liberated therefrom except in terms of Section 5 hereof, until 15 months after the last occurrence of African Coast Fever within the enclosure in which they are kept, nor shall they be allowed, after liberation, to run upon any of the land specified herein, unless such land has been free from African Coast Fever for a period of 15 months.
- (e) All cattle introduced in terms of the preceding sub-section (d) shall, on arrival, be taken direct to the Government dipping station and there be dipped or sprayed.
- (f) All cattle confined in terms of clause (d), and all calves born within the said enclosures, shall be sprayed every 14 days, as may be directed by the Cattle Inspector.
- (g) No cattle shall be moved from one native district to another unless with the permission of the local Veterinary Officer and the Cattle Inspectors of the districts to and from which such movement takes place.

4. All calves having less than two permanent teeth running within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp or other centres where cases of African Coast Fever have occurred within 15 months of the date of these Regulations, or born thereon after such date, shall be removed to some enclosed place approved of by the local Cattle Inspector, and shall not be liberated or allowed to run at large on such commonage, town lands or common grazing ground until 15 months after the occurrence of the last case of African Coast Fever within the enclosure in which they are confined, or upon such commonage, town lands or common grazing ground.

- (a) No calves shall be permitted to accompany working cattle travelling along the roads mentioned in Section 7, sub-section (c), and all calves born of such working cattle whilst travelling shall not be removed from the place where born.

5. For the purpose of cleansing an area of disease the Controller of Stock may, under the authority of the Administrator and on the advice of the Chief Inspector of Cattle, subject to such conditions as may be stipulated, permit the removal of calves and other cattle to an adjacent clean area.

6. The movement of working cattle other than those specified in Section 7 hereof may be permitted within the following areas and on the terms and conditions hereinafter set forth :—

(a) Within a maximum radius of 15 miles of any working mine, or mine in course of development, for the purposes of such mine, provided that :—

- (1) Such cattle shall only be moved under permission of a duly authorised Officer, and shall be dipped every 14 days where a dipping tank is available within such area, or, in the absence of a dipping tank, be thoroughly sprayed with an insecticide.
- (2) Such permission shall not be granted where it conflicts with any other section of these regulations, or if such movement is considered to be dangerous to other cattle within the 15 mile radius.

(b) Within the boundaries of the Gwelo and Lomagundi Native Districts, and within and between the boundaries of the following adjoining Native Districts : (1) Salisbury, North and South Mazoe ; (2) Hartley, Charter and Chilimanzi ; (3) M'tokos, M'rewas, Marandellas and Makoni ; (4) Inyanga, Makoni and Umtali (as defined by Government Notice No. 13 of 1899) ; (5) Along the road West of the Sabi River from Odzi Bridge to Makondo Copper Mine, subject to the following conditions :

- (1) That the movement will be permitted for such period as the Controller of Stock may in his discretion, and on the advice of the Chief Inspector of Cattle, deem expedient, provided that such permission may at any time be withheld or withdrawn without notice.
- (2) That all applications for removal shall be approved of by the Cattle Inspectors of the districts through which the cattle pass.
- (3) Provided that in the event of such Cattle Inspectors refusing to grant permits for the removal of cattle, the Chief Inspector may, on the advice of the local Veterinary Officer, direct the issue, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (4) That all such cattle are dipped every 14 days where a tank is available, or, in the absence of a tank, are thoroughly disinfected by spraying.

7. The movement of "salted" or immune working cattle shall be permitted on the following terms and conditions :—

- (a) That such cattle have been registered and branded under the supervision of the Cattle Inspector with the brand "T.O." on near shoulder and the registration number on near horn, in terms of Section 7, clauses (a) and (b) of Government Notice No. 109 of 1905.
- (b) That the movement of such cattle shall only take place under the written permit of a duly authorised officer and subject to the conditions that they are disinfected by dipping every 14 days, where a dipping tank is available, or, in the absence of a dipping tank, by thorough spraying with an insecticide.
- (c) That movement of such cattle only shall be permitted :—
  - (1) Along the main roads of the Melssetter District.
  - (2) From Umtali to the Makondo Copper Fields.
  - (3) From Melssetter to Umtali.

8. In the event of failure of pasturage or water on land on which cattle are located the movement of such cattle will be permitted, provided :

- (a) That such movement shall be to the nearest available pasturage by the most suitable route.
- (b) That written consent be obtained in terms of Section 2, clause (b) hereof.
- (c) That such movement shall be by permit only of a duly authorised officer and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector of the district.

9. All applications for the removal of cattle under Sections 2, 3 and 8 hereof shall be submitted to, and approved of by, the local Veterinary Officer before being granted.

10. All permits granted under the provisions of these Regulations shall specify the number and brands of cattle, route to be travelled and period allowed, and may define places of outspan, and all other conditions endorsed on such permits by the officer issuing the same shall be strictly observed.

11. All veldt-fed animals within the limits of the various commonages or town lands, or other centre where there is common grazing ground within the districts of Umtali and Melsetter and the scheduled area at Selukwe, upon which public dipping tanks have been established, shall be dipped therein at least once every 14 days; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

12. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these regulations in respect of any dipping done at a public dipping tank:—

For Horned Cattle (six months old and over)	..	3d. per head.
For Horses and Mules	..	3d. „
For Calves (under six months) and Donkeys	..	2d. „
For Small Stock	..	½d. „

with a minimum charge of 6d. for any number of animals not aggregating such fee under the above tariff.

13. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed: provided that the Inspector may at his discretion carry out such disinfection with the assistance of and at the entire cost of the owner of the animals sprayed, the cost of such disinfecting being payable at the time of spraying.

14. Whenever the owner, occupier, or manager of a farm shall adopt means for cleansing his cattle running thereon, either by spraying or dipping or any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the same farm to cleanse such cattle or any others before permitting them to enter or pass over such an area, and the Native Commissioner of the district in which such farm is situated may enter into an arrangement with the native owners of cattle, to cleanse such cattle at a charge to be mutually agreed upon between the said owner, occupier or manager and the said native owners.

15. Any person contravening the provisions of these regulations shall be liable to the punishments prescribed by the Ordinance, and in cases where no special punishment is prescribed by the said Ordinance to a fine not exceeding £20, or to a period not exceeding three months' imprisonment with or without hard labour in default of payment of any fine inflicted.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 211 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 3rd October, 1907.

#### IMPORTATION OF PLANTS, ETC., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby cancel Government Notice No. 157 of 1907, and declare the following to be of full force and effect in lieu thereof:—

Until further notice no person shall introduce into Southern Rhodesia from the area of Cape Colony, lying East of and including the divisions of George, Oudtshoorn, Uniondale, Willowmore, Aberdeen, Murraysburg, Rich-

mond, Britstown, Hope Town, Herbert and Kimberley, any nursery stock, ornamental plants and shrubs, fruit or portions thereof, save as is in the next succeeding paragraph provided.

Any consignment of farm produce (which term shall include articles of consumption grown on a farm other than produce of a vine) may be introduced if accompanied by a certificate of a Magistrate or a Justice of the Peace of the district in which it is produced to the effect that such production was outside a radius of one quarter of a mile from any vine, virginian creeper or plant belonging to the family *vitaceæ*.

If at any time an Inspector shall find any tree, plant, fruit, vegetable, or portion thereof introduced into this Territory in contravention of this Regulation he shall order the same to be immediately removed from the Territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stock from the aforesaid areas which have been granted under Section 16 of Government Notice No. 141 of 1906 shall be and are hereby withdrawn.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 236 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 21st November, 1907.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers vested in me by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that, notwithstanding anything to the contrary appearing in Government Notice No. 141 of 1906, and until further notice, the importation into this territory of any tree, shrub, or vegetable, and the fruit, leaves, cuttings, bark or any part thereof whatsoever, except seed, from the Orange River Colony is strictly prohibited.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof introduced into this territory in contravention of this regulation, he shall order the same immediately to be removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stocks from the aforesaid Colony which have been granted under Section 16, Government Notice No. 141 of 1906, shall be and are hereby withdrawn.

Any person guilty of a contravention of these regulations shall be liable to a fine not exceeding £10, or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

Department of Posts and Telegraphs,  
Southern Rhodesia.

Postal Notice No. 34 of 1907.

# IMPORTATION INTO THE UNITED KINGDOM OF SAMPLES AND SMALL QUANTITIES OF TOBACCO.

THE following Memorandum as to the conditions under which small quantities of Tobacco can be imported into the United Kingdom is published for general information :—

## MEMORANDUM ISSUED BY THE BOARD OF CUSTOMS AS TO THE IMPORTATION INTO THE UNITED KINGDOM OF SMALL QUANTITIES OF TOBACCO, CIGARS AND CIGARETTES.

The importation of Tobacco, Cigars and Cigarettes into the United Kingdom is prohibited except at Ports approved for the purpose, and in packages of a gross weight of not less than 80 lbs., but the Commissioners of Customs, in the exercise of the discretionary powers vested in them, do not enforce the full penalty of forfeiture of smaller imported quantities, *i.e.*, in packages weighing less than the legal weight of 80 lbs. gross, but allow them to be admitted on payment, in addition to the duty, of a fine of 6d. per lb. or fraction of a lb. if the goods are duly entered in the importing ship's report, or, if imported by Parcel Post, duly declared by the sender. Goods not so reported or declared are liable to detention, but the Commissioners allow delivery, where, in their opinion, the circumstances justify it, upon a fine of 9d. per lb. or fraction of a lb.

Cavendish or Negrohead Tobacco, which is prohibited from importation except to be warehoused, is similarly allowed to be admitted for private use upon an additional fine of 6d. per lb. or fraction of a lb.

Unmanufactured Tobacco is admitted on payment of a fine of 3d. per lb. or fraction of a lb. when duly reported or declared, or of 6d. per lb. or fraction of a lb. when not so reported or declared if delivery is allowed.

In all cases the amount of the fine is calculated on the actual number of pounds of Tobacco, etc., in the package, or on the number of pounds by which the gross weight of the package falls short of 80 lbs., the fine being fixed at the smaller of the two alternative quantities and the full fine per pound being levied in respect of any fraction of a pound.

The Duties on Tobacco, etc., as now in force, are as follows :—

Tobacco, manufactured, viz. :					s.	d.
Cigars	..	..	..	.. the lb.	6	0
Cigarettes	..	..	..	.. "	4	10
Cavendish or Negrohead	..	..	..	.. "	4	4
Other manufactured tobacco	..	..	..	.. "	3	10

Tobacco, unmanufactured, containing 10 per  
cent. or more of moisture :

If stemmed or stripped	..	..	..	3	0½
If unstemmed or unstripped	..	..	..	3	0

Tobacco, unmanufactured, containing less than  
10 per cent. of moisture :

If stemmed or stripped	..	..	..	3	4½
If unstemmed or unstripped	..	..	..	3	4

As regards parcels of Tobacco, Cigars or Cigarettes imported through the medium of the Foreign and Colonial Parcel Post, or from the Channel Islands by Inland Post, such parcels are on arrival at the Parcel Post Depot at Mount Pleasant, Farringdon Road, London, or at the Parcel Post stations at other ports, as the case may be, opened and presented by the Officials of the General Post Office (as representing the Importer), to the Officers of Customs, who examine the contents and assess the Duty and fine payable thereon, and the Duty, etc., so charged is collected by the Postal Officials on delivery to the addressee.

(Signed) R. HENDERSON,  
Secretary.

Custom House,  
London, October, 1905."

Postal Parcels from Southern Rhodesia to the United Kingdom are limited to 11 lbs. in weight.

The importation of tobacco by "Sample Post" into the United Kingdom is prohibited with the sole exception of type samples of *unmanufactured* tobacco not exceeding 4 ozs. in weight which are delivered on payment of 9d. Customs duty.

It should be noted that samples of tobacco tendered for transmission by "Sample Post" must be forwarded for *bona fide* trade purposes only.

G. H. EYRE,  
Postmaster-General.

General Post Office,  
Salisbury, 11th November, 1907.  
(2885-07).

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No. 9 of 1907.

#### NORTH-WESTERN RHODESIA.

**W**HEREAS there is reason to believe that certain diseases in cattle exist in the Territory of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, and it is therefore expedient to take measures to prevent the spread of such diseases to North-Western Rhodesia.

Now, therefore, under and by virtue of the powers in me vested by Section 2 of His Excellency the High Commissioner's Proclamation, No. 18 of 1906, bearing date the 31st day of July, 1906, I do hereby order and declare and make known as follows:—

1. That Government Notices, No. 2 of 1902, and No. 11 of 1906, are hereby withdrawn, and the following Regulations substituted:
2. The introduction of any bull, ox, cow, heifer or calf or the meat of any such animals, into the Territory of North-Western Rhodesia from the Territories of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, is prohibited until further notice.
3. No person shall introduce into the Territory of North-Western Rhodesia from the Territories aforesaid, any horse, mare, gelding, mule, donkey, sheep, goat or pig, horns or skins, or any kind of vehicle, wagon gear, trek gear, or harness, without having first obtained the special permission in writing of a District Commissioner, Civil Commissioner, or other person thereto authorized by me; and such animals, horses, skins, vehicles, gear, or harness, shall enter the Territory of North-Western Rhodesia at such place, and under such conditions as regards quarantine and disinfection, as shall be ordered by the person issuing such written permission as is above described.

4. Whenever any conditions as to quarantine, isolation, disinfection or otherwise, are imposed, such conditions shall be fulfilled at the sole risk and expense of the owner, consignee, or other person concerned.
5. All live stock imported into the Territory by rail by way of Victoria Falls and Livingstone, shall be inspected at Livingstone Station, and, whenever disinfection is ordered, shall be disinfected at that Station.
6. In the case of live stock consigned to any point on the railway line north of Livingstone Station, the officer authorized to issue the written permission aforesaid shall further order the disinfection of the truck or horse-box in which such stock is being conveyed. Such disinfection shall be carried out at the expense of the owner or consignee of the stock, or other person concerned therein.
7. Consignors and importers of live stock shall give not less than seven days' notice of the arrival of such stock at Livingstone Station. Such notice shall be given to the Civil Commissioner, Livingstone, or to such other official as may hereafter be appointed.

ROBERT CODRINGTON,  
Administrator.

By command of His Honour the Administrator.

HENRY RANGELEY,  
Acting Secretary.

Administrator's Office,  
Livingstone, North-Western Rhodesia.  
30th September, 1907.



#### DISEASES OF ANIMALS ACTS, 1894 TO 1903.

##### NOTICE.

#### IMPORTATION OF HORSES, ASSES, AND MULES INTO GREAT BRITAIN.

THE Board of Agriculture and Fisheries desire to call the attention of all concerned to the following provision contained in Article 2 of the Glanders or Farcy Order of 1907, which comes into force on the 1st January, 1908 :—

No horse, ass, or mule, brought to Great Britain from any other country, except Ireland, the Channel Islands or the Isle of Man, shall be landed in Great Britain unless it is accompanied by a certificate of a veterinary surgeon to the effect that he examined the animal immediately before it was embarked or whilst it was on board the vessel, as the case may be, and that he found that the animal did not show symptoms of glanders or farcy.

The Order further enacts that if any horse, ass, or mule is landed in contravention of the Order, the owner thereof, and the owner and the lessee and the occupier of the place of landing where such animal is landed, and also the owner and the charterer and the master of the vessel from which the same is landed, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894, and renders himself liable to a penalty of £20.

T. H. ELLIOTT,  
Secretary.

Board of Agriculture and Fisheries,  
4, Whitehall Place, London, S.W.,  
2nd September, 1907.

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## Departmental Notices.

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### DESTRUCTION OF WILD CARNIVORA.

It is hereby notified for public information that commencing on 15th June, 1906, rewards will be paid for the destruction of wild carnivora, within the limits of Southern Rhodesia, on the following terms and conditions, viz.:

£2 10s. each for Lions.

£1 each for Leopards and Cheetahs.

10s. each for Wild Dogs.

5s. each for Jackals, Tiger Cats and Redcat or Lynx.

2s. 6d. each for Baboons.

1s. each for Grey Monkeys.

Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the District.

In proof of destruction, applicants for rewards will be required to produce and surrender the skulls of lions and the tail and skin of head and neck of other animals destroyed. Of young animals, where the tail is less than six inches in length, the complete skin must be produced.

Applicants must be prepared to make a solemn declaration to the effect that the animals for which rewards are claimed have been captured and killed within the boundaries of the district of Southern Rhodesia wherein the claim is made and subsequent to June 15th, 1906.

### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

### STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 3s. 6d. per ounce.

## DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

## GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree*.—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

## VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

## PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

## TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	s.	d.
Turkish, Smyrna ... ..	1	6
Turkish, Cavalla (an aromatic variety) ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0
Conqueror (a heavier variety than the two former) ... ..	1	2
Bullion, do. do. do. ...	1	2
Zimmer Spanish (a hardy cigar tobacco) ...	1	6
Cuban Leaf (a cigar variety) ... ..	1	6
Sujatra (a cigar tobacco, wrapper) ... ..	2	3
White Burley (a bright Virginia, somewhat heavier than Hester) ... ..	1	6
Warne, do. do. do. ...	1	6
Connecticut Seed Leaf (a large cigar variety)	0	10
Kentucky Yellow (a dark rich large leaf) ...	1	0
Sweet Orinoko (used for plug fillers, a chewing tobacco) ... ..	0	10
Melton Prior (a dark strong leaf) ... ..	1	0
Lacks (a broad leaf, tough, fine fibre; on grey soils cures bright and elastic, on dark, rich and gummy) ... ..	1	0
Honduras (a bright mahogany) ... ..	1	2
Havanah (a cigar variety) ... ..	1	0

## TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price 2½d. per square yard.

## CULTURE OF TOBACCO.

This book, by G. M. Odlum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

## FRUIT NETTING.

The Anglo-African Trading Company have also a stock of fruit netting for protecting fruit trees from the attack of fruit fly and other injurious insects, also birds.

## TREES FOR SALE.

A quantity of the following trees, planted in tins, are for sale at the Experimental Station, or on application to the Department:—

*Euc. tereticornis.*

*Euc. saligna.*

*Euc. botryoides.*

*Euc. rostrata.*

*Euc. salubris.*

*Euc. leucoxydon.*

*Euc. coriacea.*

*Casuarina leptoclada* (Beef wood).

Price 8s. 4d. per hundred. Remittance and cost of railage must accompany order.

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## PRIZE COMPETITION FOR RHODESIAN GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown each season during the two years, 1907 and 1908.

1. For Rhodesian grown leaf from Turkish seed and cured in the usual Turkish manner.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over : £75.

2. For Rhodesian grown leaf from American seed and flue cured.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over : £75.

### CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.

2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.

3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.

4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.

5. No competitor shall enter for both prizes in the same class.

6. All competing crops shall be the product of the season in which they are entered for competition.

7. Crops can be lodged at one of the Company's warehouses, which will be advertised later, any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st October in each year.

## INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

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In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows:—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

## TOBACCO TRANSPLANTS FOR SALE.

We are prepared to supply large quantities of the Bright Virginian type, grown from Imported Seed, obtained from the Agricultural Department, also from our own Acclimatised Seed.

Price, 15/- per 1,000 f.o.r., Norton's or Hunyani Siding.

Apply Manager,—

B.S.A. TOBACCO PLANTATIONS LTD.,  
Hunyani.

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## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Messrs. Hart and Co., Parker's Buildings (P.O. Box 898), Cape Town, Advertising Agents for Cape Colony, Transvaal, Orange River Colony, Natal, and Great Britain. J. Kapnek, P.O. Box 91, Salisbury for Rhodesia.

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## Farmer's Advertisement.

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**B**REEDER of Dairy Cattle has on hand Young Bull Calves from Cape Cows (Frieslands), £10 each, taken at 8 months.—C. C. Macarthur, Box 284, Salisbury.

BEST SHOT SMOKELESS  
CARTRIDGES

MARTINI	-	13/-
LEE ENFIELD	-	13/6
MAUSER	-	17/6
	-	17/6



**BREECHLOADERS from £5,**  
*Carriage and Duty Paid.*

# FAR-KILLING GUN and RIFLE.

MANUFACTURERS:

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**LONDON, BIRMINGHAM AND SOUTH AFRICA.**

**CAPE TOWN DEPOT: THE ARMOURIES, 45, BURG STREET.**

**SEND FOR ILLUSTRATED CATALOGUE.**



# THE RHODESIAN AGRICULTURAL JOURNAL

Issued by the Agricultural Department.

EDITED BY L. A. KING-CHURCH.

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VOL. V.—No. 4.]

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## Editorial.

In "The Field" of February 8th there is a review of the report of experiments and researches carried out on the Woburn Experimental Farm, and in the laboratory attached to it. This report, which is the eighth of the series, deals almost exclusively with the mixing and preparation of spraying washes upon a scientific basis. The reviewer says: "Until Mr. Spencer Pickering took this work in hand it had been carried on almost entirely under an empirical system, at least as far as can be judged from spraying prescriptions published in this country or in the United States. It may be that some of these prescriptions are the results of tests as to the precise proportions in which certain constituents combine, but if so the fact has not been divulged in any of the numerous reports that have come into my hands, and the considerable variations in the prescriptions for the same wash show that no standards have been definitely adopted by the prescribers as a body.

"Even in the case of so common a wash as the Bordeaux Mixture the prescriptions vary greatly. It has been supposed that this is not of much consequence, provided that there is an excess of lime; but Mr. Pickering, in the present report, suggests that such an excess is probably sometimes the cause of that injury to foliage often noticed

as a result of spraying with the mixture. In a paper read before the Chemical Society he made the remarkable statement that the nature of the substance constituting this mixture had not been elucidated, and his paper gave the results of numerous and elaborate experiments carried out to throw light upon this subject. It is given in an appendix to the report, but is far too technical for appreciation by any readers, who are not experts in chemistry. In the body of the report, however, a popular explanation of the results of the experiment is given, with a prescription for making the Bordeaux mixture, which saves two-fifths of the expense incurred in making what is known as the "normal" mixture. By greatly reducing the proportion of the lime, and by using lime water instead of milk of lime, a great saving in the expensive copper sulphate is effected, without in any way weakening the actual strength of the mixture for spraying purposes. Readers must be referred to the report for a description of the preparation of this new Bordeaux mixture, and of other washes to be noticed. The report costs half a crown, and its postage is three pence, but a summary of it is to be obtained post free for three pence from the publishers of both, the Amalgamated Press, Carmelite House, Carmelite Street, London, E.C.

"Another of Mr. Pickering's valuable investigations relates to the preparation of emulsions of paraffin, as the result of which he recommends a basic sulphate of copper, or iron, instead of soft soap with the paraffin, by means of which a much better spraying fluid is obtained when caustic soda is one of the ingredients of a winter wash. Accordingly, the mixture known as the Woburn wash, consisting of paraffin, soft soap, and caustic soda, for using when trees are dormant, has now been modified by the exclusion of soft soap and the introduction of copper sulphate and lime, or iron sulphate with or without lime. For fungicidal purposes the copper sulphate should be used. By far the most economical method of making the wash is with lime water, as in the preparation of the new Bordeaux mixture."

The review also says:—"Another section deserving careful attention is the one describing the result of a large number of experiments carried out to ascertain what additions to lime cause it to adhere best to trees or bushes. Mixing sulphur greatly increases its adhesiveness

although the mixture was not boiled, as it should be to effect a proper combination, unless caustic soda is also used, making up what is called in the United States a self boiling mixture. Paraffin also increases its adhesiveness. But nothing tried in the experiments prevented the flaking of the lime off the trees."

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Several illustrations of cattle, homesteads, etc., taken at or near Fort Jameson, North Eastern Rhodesia, are included in this Journal. Cattle ranching is the chief industry up there, and it is evident that great efforts are being made to improve the stock by importing pedigree Bulls. These bulls run with the Angoni cows, which are acknowledged to be some of the best native cattle to grade up from.

In the December, 1907, Journal, Mr. Barnes, in a letter, described how twenty pure bred bulls were imported from England, and in this issue illustrations of some more of these bulls are given.

The Shorthorn bull belonging to Mr. Innes is one of the celebrated "Butterfly breed" so well known in Scotland, and is brother to a bull exported to the Argentine, which cost £2,000.

All the bulls are pedigree animals, and in a few years a great change should be noticeable in the nature of the stock brought down from this district to Salisbury.

The illustrations of the two homesteads give an idea of the substantial and comfortable houses erected, and seem to indicate that cattle ranching in North Eastern Rhodesia is a prosperous and remunerative occupation.

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In view of the large number of pure bred cattle being imported into Rhodesia, breeders will be requiring ear-tags or ear-rivets in considerable numbers.

The "Deriaz System" of rivets consist of a double metal button, the two parts of which being joined and pressed together are rivetted firmly, so that it is quite impossible to separate, and use them a second time.

These rivets are largely used by stock breeders and Farmers' Associations in South Africa, and can be obtained from Messrs. McEuen and Co., 36 and 37 Permanent Buildings, Corner of Harrison and Commissioner Streets, P.O. Box 1,159, Johannesburg.

## DATES OF AGRICULTURAL SHOWS.

Bulawayo, June 4th and 5th. Sect.: — Loosley, Esq.

Gwelo, June 11th. Sect.: W. H. Boggie, Esq.

Umtali, June 19th. Sect.: H. Freeman, Esq.

Salisbury, June 26th and 27th.

Sect.: W. H. Williamson, Esq.

## **Vegetable Fibres for Rhodesia.**

By FRED EYLES.

### PART I.

The mealie is Rhodesia's staple crop to-day, but mealie raising is no longer the profitable occupation it once was. Production is growing at a pace exceeding the increase in local consumption; prices have fallen to a level allowing only a moderate margin of profit; and an improvement in prices can hardly be expected unless under exceptional circumstances, such as a partial failure of crops in any season.

I have no doubt farmers will succeed in arranging to export surplus production without loss, and with beneficial effect on their local market; but it is certain that there is not, and never again will be the "money in mealies" that formerly was the case.

To-day the Rhodesian farmer is looking for a second string to his bow, a second basket for his eggs, in a word a second payable crop.

Tobacco meets the case in many instances, and we all recognise the magnificent future before this industry, largely due to the generous and enlightened policy of the Administration, and the much appreciated labour of its experts.

But, according to present information, tobacco is not for every farmer, some soils are said to be too rich, and some too poor for tobacco, not to speak of the trained skill, experience and technical knowledge necessary to the production of a high grade leaf.

I believe I am safe in saying that our administration and our agriculturalists agree that no greater boon could be bestowed on this country to-day than another payable crop. Such crop (a) should be capable of being raised as easily as mealies, (b) should be suitable for growth on as great a variety of soils as mealies, (c) should be at least as profitable as mealies, (d) should require a method of cultivation not more difficult than that of mealies. If, in addition to these four qualifications, we can find: (e) a crop less liable than mealies to injury by locusts, pigs, and other pests, (f) a crop for which there is always a market in Europe, and (g) a crop that only needs to be grown on a sufficiently large scale to warrant the initiation of a local manufacturing industry; then surely we shall have attained an ideal that will soon place the Rhodesian farmer in an enviable position of independence, and ultimately help to bring Rhodesia to the front rank as regards population and wealth.

He would be a rash man who ventured to assert that a plant fulfilling all the above conditions was already found. But I make bold to say that we can now point in a definite direction where the desired profitable crop will be found. I refer to the large group of fibre-yielding plants.

During the last six years I have been teaching myself all I could about the local flora. About two years ago I became so impressed by the fact that an unusually large proportion of Rhodesian plants contain useful fibres, that I then began to collect all available information on the subject in the hope that I might perhaps discover something of economic value. To-day I am convinced that in the matter of fibre production Rhodesia is capable of taking a position second to that of no other country in the world. The first practical step in this direction will be taken on the day that any Rhodesian planter can report that he has grown, handled, and disposed of a few tons of fibre at a profit. We may then expect the Government to contribute something more tangible than sympathy towards the encouragement of a new industry.

No one yet knows how varied and how valuable are the vegetable fibres indigenous to Southern Rhodesia. Almost every month some new plant of this class is brought to my notice, and the species utilised by our Natives for the making of "tambos" of all descriptions seem to be

innumerable. This fact is well known to all settlers, but probably the majority do not believe that any of these fibres are valuable enough to pay for cultivation. I should like to dispel this idea, while at the same time I admit that some exotic may prove more valuable to us than any native plant.

Let us for the moment neglect all native fibre plants that are at present unknown on the European market, even though they may have been favourably reported upon. Then let us make a list of some of the best known and most valuable vegetable fibres regularly quoted in London, and examine the list with a view to discover if perhaps there may be a single one of these marketable products that could be raised in Southern Rhodesia.

- No. 1. Manila Hemp, *Musa textilis*, Née.
- No. 2. Mauritius Hemp, *Furcraea gigantea*, Vent.
- No. 3. Sisal Hemp, *Agave rigida*, var *sisalana*, Perrine.
- No. 4. Bowstring Hemp, *Sansevieria* spp.
- No. 5. Flax, *Linum usitatissimum*.
- No. 6. Jute, *Corchorus capsularis*.
- No. 7. Sunn Hemp, *Crotalaria juncea*, Linn.
- No. 8. Ramie, *Boehmeria nivea*, Hk. and Arn.
- No. 9. Hemp, *Cannabis sativa*, Linn.
- No. 10. Kanafe Hemp, *Hibiscus cannabinus*, Linn.

I will now examine this list in numerical order:—

No. 1. MANILA HEMP. This is the standard for all fibres of its class, and the prices of other cordage fibres vary from time to time according to the market fluctuations of Manila. The Banana tree from which Manila is derived is a native of the Philippines and of North Borneo. Partially successful attempts have been made to grow it in India.

The true Manila (*Musa textilis*), requires a really tropical climate, and could hardly be expected to thrive in Southern Rhodesia. But its congener (*Musa ensete*), is our common wild banana. This produces a fibre very like true "Manila," but of a slightly inferior quality. It is mentioned by a writer in the Encyclopaedia Britannica as one of the sources of Manila Hemp.

A carelessly prepared sample of this Rhodesian Manila was submitted to the Imperial Institute last year, and a report dated July, 1907, stated that, if better prepared, "it would find a ready market, competing with 'fair' or 'good' Manila," then quoted in London at from £37 to £44 per ton. In a valuable article on "Fibre Culture," by J. R. Chitty, which appeared in "The Field" of August 24th, 1907, our Rhodesian Manila is probably referred to where he speaks of "the musa of East Africa and other tropical countries. Its market value is nearly £45 per ton, but the stripping is difficult and costly, thus reducing both the extent and certainty of profits." However, I find in "Textile Fibres," by W. J. Hannan, 1902, a reference to the cleaning of the fibre of *Musa ensete* by Andrew's Patent Fibre Cleaning Machine, so that we may hope that expensive hand stripping could be done away with. The Kew reports on Vegetable Fibres also refer several times to *Musa ensete* as the source of a valuable fibre.

The average price for fair current Manila for the ten years ending December 31st, 1907, was £36 7s. 6d. per ton. On December 31st it was down to £29.

No. 2. MAURITIUS HEMP. This well known product is yielded by *Furcraea gigantea*, Vent. It is the chief fibre plant of Mauritius, where it was introduced, probably from South America, more than 100 years ago. It is also being cultivated in Natal. It grows very freely in Southern Rhodesia, and a number of specimens may now be seen in flower in the Salisbury Park. The value of Mauritius Hemp is about £25 when Manila stands at £40.

No. 3. SISAL HEMP is derived from *Agave rigida* var *sisalana*, Perrine, and is a relative of the Mauritius Hemp plant, both belonging to the Amaryllidaceae.

The difference of price between Mauritius and Sisal is slightly in favour of the latter.

No. 4. BOWSTRING HEMP or SANSEVIERA. There are seven or eight species of this genus, of which at least six are indigenous to Africa. Nearly all of them carry a valuable fibre which compares favourably with Sisal as to quality and price. Some species of Sansevieria are growing wild in Rhodesia, being specially partial to granite and sand country.

No. 5. FLAX. This is cultivated in temperate countries where the climate is humid, and it would probably not do well in Rhodesia.

No. 6. JUTE. As Manila is the standard by which the value of fibres from endogenous plants is largely estimated, so is Jute regarded by the trade in relation to the large class of bast fibres produced from exogens. Jute is obtained chiefly from *Corchorus capsularis*, which has been found in the wild state near Bulawayo, and at the Victoria Falls. It could easily be cultivated in this country, and if raised on a large scale, would probably prove profitable. The average price of Jute (1st Marks) for the last ten years ending December 31st, 1907, was £15 2s. 6d. In December last it was about £15 10s. I wish to call attention to these figures as they differ greatly from those of your correspondent in your October issue, who said "the prices during the last twenty years for ordinary Jute fibre have been from £9 to £15 per ton." This would give the impression that £15 was a maximum price for Jute, and £12 an average price likely to be obtained. I have before me a Chart prepared by Messrs. W.H. Hindley and Co. showing the fluctuations of Jute during the ten years 1898—1907, and I find this fibre was as low as £9 10s. only *once* during the whole ten years, that was in January, 1898; it rose to £28 10s. in November, 1906, and the *average* for the last 5 years ending December 31st, 1907, was about £19 9s., i.e. considerably above the *maximum* given by your correspondent.

No. 7. SUNN HEMP. *Crotalaria juncea*, Linn. This is an Indian Jute-substitute, varying in price from £12 to £20 about, and although it would probably do well in Rhodesia, it would not pay to handle it alone as a fibre crop. However, as it is a leguminous plant, it may be worthy of consideration as an alternative crop on fibre plantations where the soil has become exhausted to Jute, Hemp or such other related plant as may be adopted by Rhodesian farmers. The method of cleaning and preparing is similar to that of Hemp or Jute.

No. 8. RAMIE. *Boehmeria nivea*, Hk. and Arn. This beautiful and much advertised fibre grows well in Rhodesia, and a number of farmers have already planted it. We all wait with interest reports as to their results. Meanwhile we shall do well to be cautious, for two reasons;

1st, as pointed out by Mr. Burtt Davey, Government Botanist in the Transvaal, in a letter he wrote to "South Africa" late last year, it has yet to be proved that Ramie fibre can be produced at a profit, owing to the difficulty of degumming, for which a perfectly satisfactory machine is still wanted. 2nd, I am told that Ramie is not in demand by the textile trade generally, owing to certain peculiarities of the fibre. At the same time it has so many fine qualities that a special market for it will readily be created as soon as it can be supplied at the right price.

No. 9. HEMP. *Cannabis sativa*, Linn. There should be no difficulty about raising true hemp in Rhodesia. One species, *C. indica* is indigenous to South Africa, and a hybrid between *C. indica* and *C. sativa* has been produced in Natal. The value of Hemp varies, according to quality and other conditions, between £20 and £45 per ton. Unless planted here on a very large scale, we could hardly hope, with our unreliable labour supply, to compete with Russia, Italy and other European countries.

No. 10. KANAFE HEMP. *Hibiscus cannabinus*, Linn. This plant is very largely grown in India as a substitute for, or adulterant of Jute and Sunn Hemp. Its value varies between £15 and £22, being quoted in Dundee last year at about £3 less than Jute. I have included it here because it occurs in a wild state in Rhodesia, and there are reasons why I anticipate it may be more profitable to cultivate locally than some of the higher priced fibres.

A brief analysis of our list of ten fibres already favourably known on the European market shows us that:—

- 4 are actually natives of Rhodesia, viz. Manila (2nd quality), Jute, Bowstring, Kanafe.
- 1 is practically in the same category, viz. true Hemp, *Cannabis indica* being indigenous, and *C. sativa* having been successfully grown.
- 2 though not natives, are to-day being raised without difficulty, viz., Mauritius and Ramie.
- 2 can most probably be raised here, if shown to be payable, viz. Sisal and Sunn Hemp.
- 1 only, out of ten, is most likely unsuitable to our climate, that is Flax.

Thus, out of a list of ten commercially valuable fibre plants, we find that nine could be grown in Rhodesia, surely a sufficient proportion to attract the serious attention of farmers and the Government.

In addition to the above there is an equally large number of Native Fibres, unproved and untested so far as the European market is concerned. Several of these are likely to prove valuable and quite remunerative to local cultivators; and one of them in particular, which has only recently been brought to the notice of the Agricultural Department by Mr. Hayes of Maguendi, is of very high promise, and we may hope it will prove to be a fibre of great value, distinctively Rhodesian.

In the second part of this article, I hope to go into some details regarding the above plants as to yield per acre, cost of production, and modes of handling; and at the same time I shall give such information as may be available about Native Fibres and their possibilities.

*(To be continued.)*

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## **Smut and its Prevention.**

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As several enquiries have recently been made as to the best treatment of seed for the prevention of smut, copious extracts have been made, for the benefit of Rhodesian farmers, from a most interesting and instructive article on the subject, entitled "Smut in Wheat, Barley, and Oats, and How to Prevent it," by I. B. Pole Evans, B.A., B.Sc., Plant Pathologist, appearing in the "Transvaal Agricultural Journal," January, 1906.

Mr. Pole Evans writes as follows:—

The smut fungi have been aptly described as "lurking parasites" from the fact that they attach themselves to the seeds of other plants, and so obtain all the advantages of being carried and sown with the latter.

Smut in wheat, barley and oats is not contagious, that is to say the disease is not able to spread from one plant to another in the field.

It is only through the spores attached to the grain or present in the soil that the plants are affected.

It is the destruction of these spores adhering to the grain which is aimed at in the different methods of seed treatment.

### COPPER SULPHATE METHOD.

One of the earliest methods for treating grain against smut has been to steep the seed in solutions of copper sulphate or "bluestone."

In some cases the grain is allowed to soak over night in the solution, in other cases some prefer sprinkling the grain with the solution and allowing it to stand in piles.

The strength of solution commonly adopted, is to dissolve 1 lb. of copper sulphate in 22 gallons of water. It is well to crush the crystals and dissolve them first in hot water.

The stronger the solution, the more detrimental it is to the germinating capacity of the grain, so that it should be allowed to act for a shorter time.

This method in the case of some smuts is quite ineffectual, and in the case of all grain treated with it, impairs the germinating capacity and consequently decreases the yield.

### HOT WATER METHOD.

The hot water method of treatment first established by the Dutch investigator Jensen, in 1888, consists in placing the grain in water at a temperature which does not injure the grain, but is sufficient to kill any adherent spores. This method has been used in the United States and elsewhere with remarkable results. The method advised by Swingle is so admirable that we must be pardoned for reproducing it here:—

"Provide two large vessels, preferably holding at least 20 gallons. Two wash kettles, soap kettles, wash boilers, tubs, or even barrels will do. One of the vessels should contain warm water, say at 110 to 120 degrees F., and the other scalding water, at 132 to 133 degrees F. The first is for the purpose of warming the seed preparatory to dipping it into the second. Unless this precaution is taken it will be difficult to keep the water in the second vessel at the proper temperature. A pail of cold water should be at hand, and it is also necessary to have a kettle of boiling water from which to add from time to time to

keep the temperature right. Where kettles are used a very small fire should be kept under the kettle of scalding water. The seed which is to be treated must be placed, half a bushel or more at a time, in a closed vessel that will allow free entrance and exit of water on all sides. For this purpose there can be used a bushel basket made of heavy wire, inside of which is spread wire netting, say twelve meshes to the inch; or an iron frame can be made at a trifling cost, over which the wire netting can be stretched. This will allow the water to pass freely, and yet prevent the passage of the seed. A sack made of loosely woven material, as gunny sack, can be used instead of the wire basket. A perforated tin vessel is in some respects preferable to the above. In treating stinking smut of wheat, the grain should first be thrown into a vessel filled with cold water; then, after stirring well, skim off the smutted grains that float on top, and put the grain into the basket or other vessel for treatment with hot water. This skimming is entirely unnecessary with other grains, and even with wheat only when affected with the loose smut. Now dip the basket of seed into the first vessel, containing water at 110 to 120 degrees F., after a moment lift it, and when the water has for the most part escaped plunge it into the water again, repeating the operation several times. The object of the lifting and plunging, to which should be added also a rotary motion, is to bring every grain into contact with hot water. Less than a minute is required for this preparatory treatment, after which plunge the basket of seed into the second vessel, containing water at 110 to 120 degrees F.; after thermometer indicates that the temperature of the water is falling, pour in hot water from the kettle of boiling water until the right degree is attained. If the temperature should rise higher than 133 degrees add a little cold water. In all cases the water should be well stirred whenever any of a different temperature is added. The basket of seed should very shortly after its immersion be lifted and drained, and then plunged and agitated in the manner described above. This operation should be repeated six or eight times during the immersion, which should be continued ten minutes. In this way every portion of the seed will be subjected to the action of scalding water. In practice it will be found best to have a man or boy devote his whole time to keeping the temperature at the right

point adding a little hot water if it falls below 132 degrees, and a little cold water if it gets above 133 degrees F. Another man should handle the grain and immerse, and drain the portion being treated as directed above. After removing the grain from the scalding water, spread on a clean floor or piece of canvas to dry. The layer of grain should not be over 3 inches thick. If it cannot be spread out at once, dip in cold water and set to one side until it can be attended to. It dries best if spread while still hot. Another portion of grain can then be treated, and so on till all the seed has been disinfected.

“The important precautions to be taken are as follows:

“(1) Maintain the proper temperature of the water (132 or 133 degrees F.), in no case allow it to rise higher than 135 degrees or fall below 130 degrees;

“(2) See that the volume of scalding water is much greater (at least six or eight times) than that of the seed treated at any one time;

“(3) Never fill the basket or sack containing the seed entirely full, but always leave room for the grain to move about freely.

“(4) Leave the seed in the second vessel of water ten minutes.”

We admit that this method will at first sight seem somewhat inconvenient and cumbersome to the average farmer especially if he is not provided with the necessary thermometer, nevertheless it is the only method we yet have of dealing effectively with the loose smut of wheat.

## FORMALIN METHOD OF TREATMENT.

Recently this method of treatment has become extremely popular, and no doubt it will supersede all other methods as it becomes more widely known.

Its advantages are:—Ease of manipulation; efficiency as a fungicide; increase of germination capacity coupled with heavier yield of grain.

Formalin is sold commercially under the name formaldehyde or formol, and consists of a 40 per cent. solution of formalehyde.

It is used at the rate of a pint of formalin to 50 gallons of water.

The seed to be treated is spread out in piles on a floor or canvas, and sprinkled with the solution with a spray or watering can. During this process the grain is shovelled over a few times, to ensure all the grain being wetted. It is then left overnight in piles so that the grain may be exposed to the fumes of the gas.

### SMUTS AFFECTING WHEAT.

There are three distinct smuts of wheat, viz., two stinking smuts, commonly called bunt, and one loose smut.

The stinking smuts affect only the grain in the ear. As a rule every grain in the affected ear is transformed into a foetid black mass, resembling the smell of rotten fish, and is greasy to handle; while the chaff or glumes surrounding it are left entirely untouched. On this account stinking smut in wheat is frequently overlooked, and it is not till after the process of thrashing that the farmer finds out that his wheat is unfit for the mill.

At the time of harvest those ears which are affected with bunt are readily recognised by the fact that they stand stiff and erect, are of a lighter colour, while the chaff and beards present a more gaping appearance, i.e., they stand out more at right angles to the stalk, and have a more swollen appearance, whereas the healthy ears droop over from their weight of grain.

Unlike the stinking smuts, the loose smut has no disagreeable smell, and ripens its spores when the healthy wheat is in flower.

Loose smut may be recognised in the field by the blackening of the whole head, consisting of a loose dirty black mass, which very soon falls away and leaves nothing but the bare pointed end of the stalk.

Swingle, who has carried out a vast amount of work on these smuts, writes :—

“The loose smut is to be feared, not so much on account of the great damage it causes, but because it is very difficult to prevent, and if once introduced into a field is likely to remain year after year; for, as has long been known, the old bluestone treatments, though often very effective against stinking smuts, do not affect this species.”

For preventing stinking smut, the hot water method is undoubtedly the best.

Sprinkling the seed with formalin solution above mentioned, or soaking the seed in it for two hours is strongly recommended.

In the case of "loose smut" the only method that has been found at all effective, is to soak the seed for four hours in cold water, then allow the seed to stand for four hours in wet sacks, and finally to immerse in hot water at 132 degrees F. for five minutes. In this treatment the seed suffers a certain amount of injury, so that it is necessary to sow one half more seed per acre than is usual with untreated seed.

### SMUT AFFECTING OATS.

There are two forms common in oats. The loose smut is perhaps one of the most familiar of the smuts. It is especially conspicuous when the crop is in flower. As with the loose smut in wheat, this is just the time when the real mischief takes place, for the flowering process involves the opening and closing of the chaff or glumes. It is just at this time that the wind-blown spores lodge in the gaping chaff and are eventually trapped. Here they lurk till the following year, in the best position possible for attacking the germinating grain. By harvest time the smutted heads have been disposed of by wind and rain, and nothing remains but the bare head or panicle.

The other form of smut found in oats is known as the hidden form. Unlike the loose smut, the whole head does not become involved in a black mass, but the smut is concealed in the grain and surrounded by the chaff which is not destroyed. It cannot be detected until the grain is broken across, when it is found to be composed of a dark black mass. Consequently in this form both healthy and smutted grain are thrashed together.

For dealing with oat smut, the best method is as follows:—

The seed-oats should be dipped for ten minutes, into a tub containing one pint of formalin to 25 gallons of water, after which they can be taken out and sown immediately.

Twenty-five gallons is sufficient for twenty bushels.

## SMUTS AFFECTING BARLEY.

Two forms of smut are found on barley, known as the covered and loose smut respectively.

The covered smut is characterised by the fact that the spikelets of the affected ear become converted into hard dark masses covered by a thin membrane. The awns remain free or become very stunted in growth.

The loose smut of barley closely resembles the loose smuts of wheat and oats. The infested ears become dark pulverent masses when the main crop is in flower, and by the time the grain is ripe have been disposed of by the wind. For preventing both these smuts the hot water or formalin methods are recommended.

If the hot water method is used, the grain should first be soaked in cold water for four hours, and then set aside for four hours, after which it should be immersed in hot water at 130 degrees F., or 2 degrees below that recommended for the loose smut of wheat. This temperature does not injure the grain.

If the formalin treatment is preferred, a large pile of grain should be thoroughly saturated with a solution containing one pint of formalin to 50 gallons of water. The pile should be shovelled over rapidly so that it may become evenly and thoroughly wet, after which it should be left for two or more hours.

This method applies equally well to the treatment of oats.

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## Sisal Fibre Cultivation.

Any publication tending to throw more light on the successful cultivation of our fibrous plants must be welcomed by the many planters who are interested in the industry.

Agave fibre growing is taking a prominent position in Indian cultural pursuits, and being comparatively still a new industry much has yet to be learned which actual practical experience will only teach.

To those engaged in cultivating fibre plants with a turn to Botany, "Notes in Agave and Furcraea in India," will no doubt prove interesting. But as far as any information given about the best methods of profitably

growing these plants and extracting the fibre from their leaves, these notes leave us much as we were before. It is of small use to the practical planter to be told this or that concerning the plant's botanical structure, or of what affinity it may happen to be to other plants of the same species. We have the plants which have been proved to give the best fibre of their kind, but what we want to know is the best way to plant them and the best soils to plant them in, in order to procure the best quality and greatest quantity of fibre per acre. It has been asserted time and again that the so-called aloe fibre plants will grow and succeed in any kind of soil; in fact that it would grow in soils in which no other plant of economic value would exist. Practical experience in the growing of these plants has conclusively proved that this is very far from being the case. The Agave, along with the Cacti, will stand an amount of drought which would prove fatal to plants with an expiratory structure adapting them for growing in a moist climate. It is supposed that this structure of the sisal plant, if not already undergoing, will undergo modifications, and gradually become adapted to the environment of the Indian climate. This change of structure, it is asserted, has already taken place in the *Furcraea*s and certain agaves which are now more or less acclimatised to this country. Whether the *Furcraea* were more liable to attacks from disease before they got inured to this climate cannot now be ascertained, as the interest in the plant's economic value was much less at the time of its introduction than it is now, and consequently, little if any was paid to its peculiarities. less at the time of its introduction than it is now, and consequently, little if any attention was paid to its peculiarities. That the *Furcraea* is a much more hardy plant, and stands the variations of temperature and extreme moisture of the climate of Bengal and Assam has been fully demonstrated by growers of both plants, but there can be no doubt that the sisal plant will in time become equally reconciled to its surrounding conditions. In the growing of sisal there are seeming contradictions. As stated above it was at one time believed that sisal could be profitably grown upon any kind of the poorest soils and upon worn-out tea soils upon which tea could be no longer profitably grown. It may now be confidently as-

serted, without the slightest fear of contradiction, that sisal cultivation will never be a profitable venture under such conditions. At the inception of sisal growing in this country ten or twelve years ago, planters had largely to go upon what they were told by Colonial Government Agricultural bulletins and the bulletins issued from Kew. But now by actual practical experience they have come to know that the better the soil the better the crop of fibre, both in quantity and quality, and if the land is not too good for tea, it certainly will not prove too good for sisal growing. This is equivalent to saying that the land has not been found yet which has proved too rich for growing sisal, or the Mauritius hemp either.

It is said that the sisal plantations in Yucatan are composed of poor rocky barren soils, and in the arid climate of the agave belt of Central America, one would hardly expect to find soils rich in nitrogenous matter. But it is said to be rich in lime, and that the agave delights in such soils. In what form the lime exists in the Yucatan soils does not appear, but probably in the carbonite, and possibly in the more manurially valuable phosphite. It has been stated that if when planting a worn-out tea garden with sisal, the soil in the holes is well mixed with lime, the sisal will do well and grow strongly. In the absence of practical demonstration, this statement should be received with caution. Amongst the apparent inconsistencies in the growth of the sisal plant already alluded to may be mentioned that, although the sisal plant—to grow profitably—requires as good a soil as the tea plant, it will grow in certain soils and under conditions which would prove fatal to other plants. For instance, it will grow and flourish without the slightest sign of suffering in a long continued drought when tea would certainly go to the wall. Again, it is invariably found on a sisal plantation that the biggest and finest plants are those which have happened to be planted on the hard impervious clayey soil of the white ant *telah*—a soil impervious to air and rain that the tea plant will not exist when planted in it, far less grow and produce a crop. From this one would infer that cultivation is not essential for sisal. On the other hand, it entirely goes without the slightest doubt that the sisal plants give the best results when grown in good rich soil, and it is equally as certain that the better the cultivation the richer the soil will be in the

mineral constituents of the plant, and when carried out judiciously the richer in nitrogenous matter as well. When a poor sandy tea soil is top dressed with ant heap soil, it has a magical effect in improving its fertility. This is no doubt partly owing to its improving its mechanical state and making it more retentive of moisture. But it has undoubtedly a fertilising effect as well, by invigorating the plant and increasing its outturn. This opens out a field of investigation which has hitherto been conspicuous by its absence.

White-ant telahs are to be found in most gardens, and it would be interesting and useful to know what change takes place in the chemical composition of a soil when being manipulated by white ants in making their family mansions. The latter subject, however interesting it would be to a planter, has little to do with the theme of our present article, but so much has been discovered by practical planters during the last ten years concerning sisal growing, that preconceived ideas concerning its cultivation have been entirely upset, and any planter without the practical experience essential to the successful cultivation of the plant to start with the idea that it will grow and succeed in any kind of poor worn-out soil, would end in bitter disappointment and failure.

As we must be always learning by experience, it would be quite inexcusable if the mistakes were continually repeated which were made by planters at the commencement of this industry. We learn more by one failure than by twenty successes, and if we have profited at all by the mistakes which have been made in the past, we must be in a fair way of acquiring accurate ideas of what systems of planting and subsequent treatment are most likely to lead us to its successful cultivation. The difficulty is that we are apt to hear of the successes, but we hear as little as possible of the failures which lead up to them as they are naturally kept in the background. It is now known that *Agave Rigida*, Linn. *Sisalana*, is a somewhat variable plant. Some of the plants will grow much more quickly than others, even bulbils in a nursery composed of a uniform kind of soil throughout, all of the same size when planted, and seemingly all of the same robust health and constitution, will vary much in the rapidity of growth, some of them forging far ahead of their neighbours growing within a few inches of them.

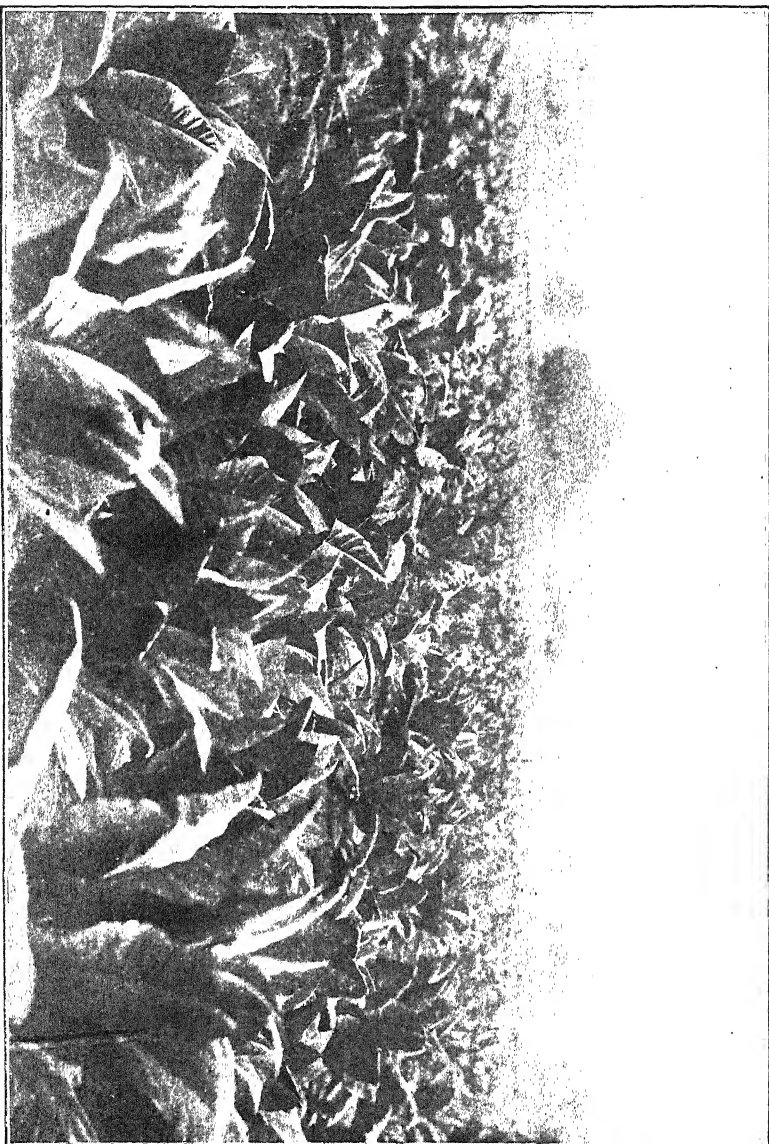
The same peculiarity is continued when planted out. This may not materially influence the ultimate success or otherwise of the plantation, but sisal planters now carefully lift and plant the stronger plants, and either replant the weaker in a fresh nursery or leave them where they are until they are bigger and stronger before being planted out. This plan if for nothing else ensures a uniform size of plants on the *telah*, as a laggard in the nursery generally proves more or less when planted out amongst its more robust companions.

It appears still to be uncertain, and opinions seem to differ, whether plants from *bulbilae* or suckers are best for planting out. Some planters are in favour of suckers when they are to be had, but whether suckers or *bulbilae* are the longest lived has not yet been determined. Of course the great bulk of the ground planted has been with plants raised in nurseries from *bulbilae*, and it is still a moot question whether the sucker is preferable to the well grown nursery *bulbil*. In any case all sisal planters agree that the stronger the plants of either the best for planting out, and that nursing in their young state is equally as essential as it is for any other plant, and that no plants should be planted out under 18 inches high, and, if two feet high, all the better.

Robust nursery plants of 12 inches and under have made successful plantations, but it is found that the stronger and older plants make better and quicker headway, more especially if the soil is of indifferent quality.

One of the most fatal mistakes made in planting out a sisal garden—a mistake if it may be dignified by that name—is often made by planting out a larger area all at once than can be coped with owing to insufficiency of labour. This is inexcusable, as the same thing has happened in tea time and again. It was thought that sisal required only, at most, one half of the labour realised for the same area of tea. During the first two or three years it requires equally as much in order to cultivate and thereby eradicate the coarser and stronger growing grasses, which naturally succeed the original jungle cut down, inducing the finer grasses to take their place. When this has been accomplished, little cultivation is required beyond forking round the plants, as the sisal proves itself well able to hold its own when once it gets a fair chance at first. Then by that time the factory





Thirty acres of Tobacco grown by Messrs. Hart & MacLagan, at Histonhurst Farm, Victoria District.

work commences which has proved to require much more labour than formerly anticipated. The factory demand on the labour force will decrease as the decorticating machinery gets more perfect. Manufacturers of the latter, trying hard as they undoubtedly are, have much to do yet to bring the machinery in line with requirements. Such instances of planting out too large areas have undoubtedly occurred with, if not altogether irretrievable disaster, still sufficiently so as to make them "ricketty," and, to say the least, placed them no further forward than those who started a year later, but upon sounder practical forethought, when larger areas are rushed out than can be coped with by an insufficient labour force owing to the rush of the jungle growth, when the rains come on, the young plants get completely covered, and kept from light and sunshine. When time and labour can be spared for clearing the jungle away, the plants have been so completely blanched and made so tender that the rays of the sun simply "lay them out," from which they never recover. The sisal plant, in this respect, is much more liable to complete destruction than the tea plant, hardy and all as it gets the name to be. In one instance which came under the writer's notice, where a larger area had been planted than could be kept in hand, plants were only saved from destruction by taking temporary measures which proved sufficient to tide them over in safety till such time in the cold weather as the work could be thoroughly taken in hand. But as this article has already exceeded usual limits, a description of these measures must be deferred.—*Indian Agriculturist*.

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### **Tobacco Seed and Greek Tobacco Growers.**

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The Agricultural Department has on hand a good supply of Tobacco Seed, particulars and prices of which will be found amongst the Departmental notices appearing elsewhere in this journal.

The Government recently imported fourteen expert Tobacco growers and handlers, these men, who are Greeks, arrived here on December 14th, 1907, and,

with the exception of two who were required for the Company's tobacco warehouse, were disposed of to farmers in both Provinces without any difficulty. Their agreements are for three years and terms of service as follows :—

Wages at the rate of £7 per month for the first year, £7 17s. 6d. per month for the second, and £8 15s. per month for the third year, the employer to find them in food, accommodation, and medical attendance, free of charge. On the completion of their three years the Government undertakes to repatriate them.

The arrival of these men in the country will undoubtedly give an impetus to the Turkish tobacco growing industry, and the best results are looked forward to.

No difficulty would have been found in placing another half dozen of the same class of man had we had them.

Some difficulty was at first experienced over the language question, as none of them spoke a word of English, or any other language, but their own. They are, however, anxious to learn, and are picking up kitchen Kaffir very quickly.

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### Stock Breeding—Frieslands.

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The recent importation of pedigree Frieslands by Messrs. Maclaurin Bros. is a matter well worth placing on record, as this is the beginning of practically the first stud farm in Mashonaland.

Much credit is due to Messrs. Maclaurin for undertaking the risks which are inseparable from this highly specialised branch of stock farming, and it is hoped that great success will attend their efforts.

In a few years it will be possible to obtain pure bred stud bulls, the pedigrees of which will be duly certified in the South African Stud Book; these bulls being bred locally, and therefore not requiring to become acclimatised, the risks attendant upon importing stud animals will to some extent be avoidable.

Messrs. Maclaurin's first importation consisted of two bulls and twelve heifers. These were bred by Mr. R. Cross, Hillside, "Bolotiva," Cape Colony, a well known breeder of Frieslands, whom some of our readers may remember having met at Bulawayo last year, during the Show week, when he acted as a judge, and also spoke very highly of the cattle exhibited at the Show.

The following are the pedigrees of the bull and heifers imported:—

Sir David	...	...	Sire—Conqueror (Imp.)	27305	
			Dam—Effy II. (Imp.)	10938	
Koelmuis II.	388...		Sire—Conqueror	27305	
			Dam—Koelmuis	...	400 S.A. Stud.
Meadow	Tag 30...		Sire—Conqueror	...	27305
			Dam—Whitefoot	...	315
Damsel II.	„ 28...		Sire—Conqueror	...	27305
			Dam—Damsel	...	390
Simple II.	„ 76...		Sire—Conqueror	...	27305
			Dam—Simple	...	93
Silver Cup	„ 98...		Sire—Conqueror	...	27305
			Dam—Black Sall	...	402
Black Bess II.	„ 48...		Sire—Conqueror	...	27305
			Dam—Black Bess	...	
Nancy II.	„ 27...		Sire—Conqueror	...	27305
			Dam—Nancy	...	301
Reserve	„ 31...		Sire—Conqueror	...	27305
			Dam—Loo	...	379
Cowslip II.	„ 53...		Sire—Conqueror	...	27305
			Dam—Cowslip	...	386
Fancy II.	„ 49...		Sire—Conqueror	...	27305
			Dam—Fancy	...	385
Bella II.	„ 79...		Sire—Conqueror	...	27305
			Dam—Bella	...	61
Concern II.	„ 89...		Sire—Conqueror	...	27305
			Dam—Buttermilk	...	

Messrs. Maclaurin Bros. have sold the other bull, and intend importing another stud bull, the very best they can get, and quite unrelated to any of the above stock; they hope to be able to either import one from Europe, or else obtain an animal that has a long list of prizes to his credit won at the coming Shows in the Cape Colony.

Some of Conqueror's progeny are thought very highly of, the Cape Government have bought four heifers sired by him to increase their herd of Frieslands on the Elsenburg Experimental Farm.

The accompanying illustrations give a very good representation of Sir David, who was not quite fourteen months old when it was taken, he having been born on

January 26th, 1907, and also of the heifers, although the individual excellence of these cannot be shown when taken in a group.

We are indebted to Mr. Thwaites of the Agricultural Department for these photographs.

Besides their Frieslands, Messrs. Maclaurin have also some pedigree Large White sows, photographs of which are also reproduced.

Peggy is from imported stock, her dam coming from Lord Elsmere's celebrated herd. This sow has made most satisfactory increase in weight during the short time Messrs. Maclaurin have had her in their possession, showing that she is from a strain, more of which kind are wanted in this country, that do full justice to the food given them. On January 4th she weighed 88 lbs., on February 4th, 142 lbs., and on March 4th, 205 lbs., thus showing an increase of over 1 lb. 11oz. per diem during the first month, and of 2 lbs. 2 oz. per diem during the second month. The sow was not specially fed to obtain these results, but received skimmed milk and a few mealies with the rest of the pigs, and during the second month she was turned out on the veld for fear she would otherwise get too fat for breeding.

It is pigs that give such satisfactory results that are needed to supply the proposed Packing Factory, and Messrs. Maclaurin will have no difficulty in disposing of all the litter of this sow to farmers who intend taking up pig feeding seriously.

Since writing the above, Messrs. Maclaurin Bros. have imported another fifteen Friesland heifers; these heifers, although not registered in the Stud Book, are all pure bred, and were bought from the following well known breeders, Messrs H. Lombard, J. D. van Niekerk, and E. D. Wienand.

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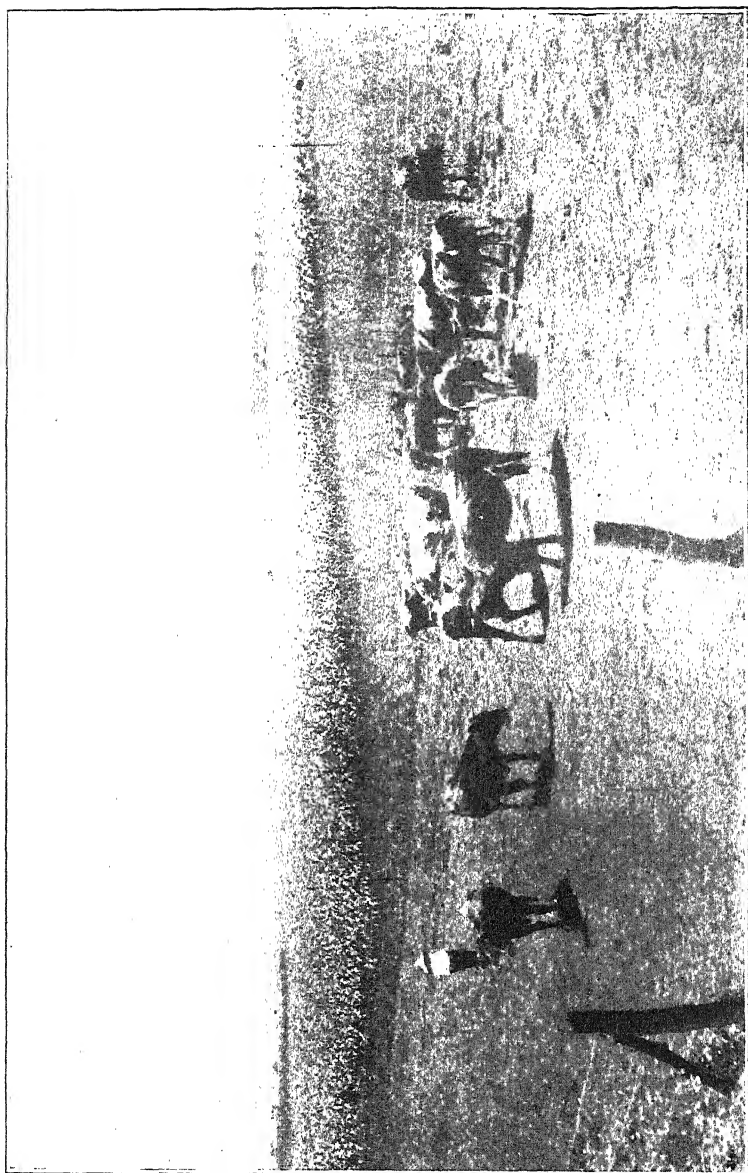
## **The Cattle Industry in Rhodesia.**

By J. CAMERON.

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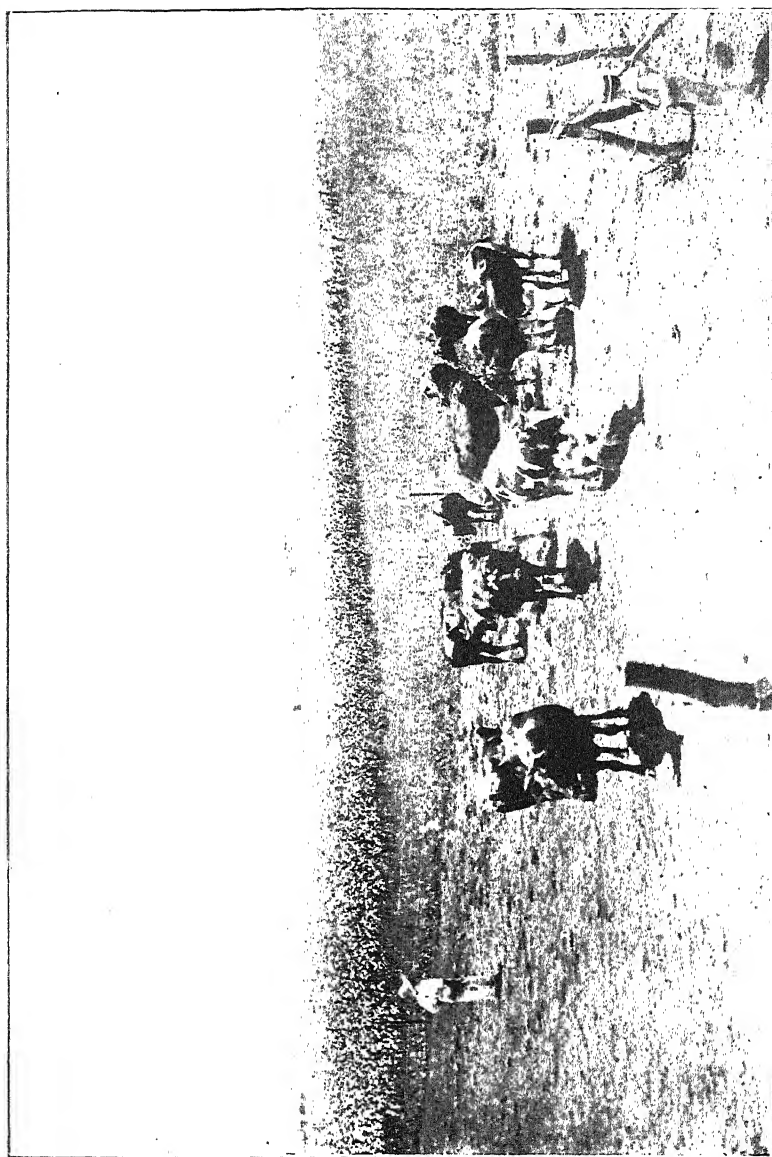
The importance of cattle raising in Rhodesia as a branch of the Agricultural industry is steadily increasing.

At no time in the history of the country have importations for the improvement of breeds been carried out so largely, or such keenness manifested among farmers towards securing good types to begin with.

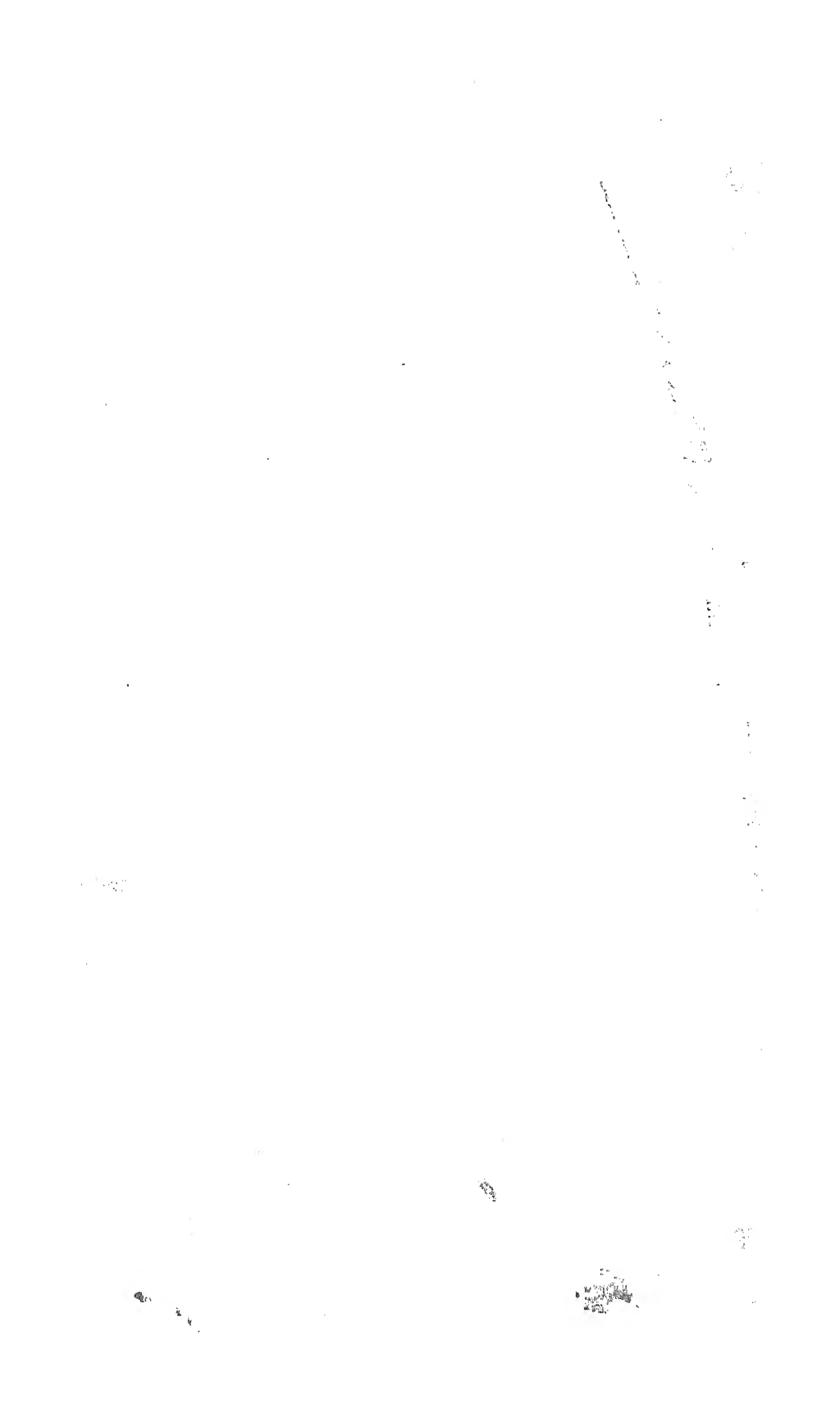


Priesland Heifers.





Friesland Heifers.



But whether Shorthorn, Friesland, or any other breed is the variety selected, there are certain considerations to be attended to in order that the results following the grading up of cattle by the introduction of pure-bred bulls may be attended with that success which should be expected.

Now of all the influences that bear on the rearing of stock, the treatment during the period of calthood has the greatest effect. The most important period during the life of stock is from calthood till about a year old. An animal poorly fed and ill attended to during that period of its life will never afterwards recover what it has lost in that time.

The manner of rearing calves has not the same significance among native breeds, and to some extent also with Africanders, as with other stock, their much slower growth compensating for shortness of nourishment at the earlier stages, yet this slow growth is the feature sought to be improved upon, since an animal that only comes to maturity at six to eight years is outside the pale as a beef breed, and can only be regarded in practical stock farming as a trek animal.

The object of the introduction of pure bred bulls is to secure greater size and quicker growth in the cross from native and other ill-bred cows. This result can only be obtained by paying much greater attention to the rearing of the calves, than has been found necessary with native and other slow growing animals.

Whilst on two bottles of milk per day a native calf may pull through indifferently well, the same quantity given to a cross bred calf with a Shorthorn or Friesland as sire, will only produce a weed, or possibly it will not survive on such short commons. The least that a cross-bred calf will require in order to carry it on, in a healthy thriving state, is six bottles of milk per day, or in other words, every drop of milk a native cow produces.

An animal that reaches the same size in two years as the native stock grows to in five, will obviously require a great deal more nourishment in the time, and particularly during the first year.

Now the question may be opened up whether the milk produced on a farm may be used to greater advantage in making dairy produce than in rearing calves. With native cows a cross bred calf will need all the milk a single cow

produces, and any of the milk taken for dairy purposes will have to be compensated for to the calf by providing a substitute. It is thus merely a question whether the milk or the substitute is the cheapest.

It may be observed that calves can be very successfully brought up on separated milk, provided a substitute is provided to replace the fats removed in separating. It has been found that 2 oz. of cod-liver-oil per day is the best equivalent for cream to be fed with separated milk—that is, 2 oz. of cod-liver-oil and six bottles of separated milk is equivalent to six bottles of new milk for calf rearing. Thus a calf will get  $3\frac{1}{2}$  pounds per month of cod-liver-oil, which, at 1s. 6d. per pound, will amount to 5s. 3d. per month. For the first month the calves should be fed on whole milk, but for the second month and following four months separated milk and cod-liver-oil can be substituted if dairy produce is found more profitable. Thirty gallons of milk will yield about twelve pounds of butter.

When the system of rearing calves by hand is carried out, the whole of the milk should be taken from the cows, it should then be separated immediately, afterwards slightly warmed, the cod-liver-oil added, and then fed to the calves. The practice of milking so much from the cows, and leaving a residue in the udder for the calves, is wholly indefensible, and is altogether inapplicable when cross bred calves are concerned.

No doubt some difficulty may be experienced in getting cows to milk without first letting the calf induce the milk to flow, but a little time and patience will overcome this drawback, which in the case of young cows need never occur at all. In the case of dairy cows having a large quantity of milk, it is particularly necessary that the cow should give all her milk without first having to receive the attentions of the calf. Those who believe that this old practice should be followed must admit themselves wholly unskilled in the proper management of dairy cows, since such a thing as letting the calf slobber at a cows teats before milking would be condemned, and prohibited in all other countries for health reasons alone.

There are only two ways of rearing calves in so far as their dams are concerned, either wholly with the mother, and getting all her milk, or wholly apart from the mother and feeding by hand. Cows giving a small quantity of milk are fitted only for the first method, and will rear very

good calves when running with them all the time. Cows giving two to four gallons of milk daily can be utilised, in rearing two calves by suckling them on the milk taken from her, and feeding it to them by hand. A good many cows can be induced by careful supervision at the period of calving, to adopt a calf along with her own, and this is more easily accomplished when the two calves are born about the same time. Thus one cow is relieved wholly for milking while the other brings up the calves without further trouble.

Calves that are reared by hand must be kept apart from their dams from the moment of birth. The matter of teaching them to drink from a vessel is generally only a job of a few minutes, but if desirable rubber teats can be used which have the advantage of not allowing the calf to drink too quickly. If the milk is always slightly warmed however no harm comes from drinking from a bucket.

One point of great importance in the treatment of young calves, that of allowing them plenty of fresh air, is unfortunately, in this country, widely neglected. Calves should be allowed to run in a well enclosed paddock of a few acres in extent having a shelter of some sort provided for protection during heavy rain. The practice of keeping them cooped up over night, and in many cases both day and night in a kraal or hut which affords them little more than standing room, has as much to do with inducing disease—lung and stomach troubles—as the accompanying semi-starvation.

Calves should be fed three times a day instead of twice, which is the usual practice. A calf running with its mother thrives on less milk than a hand fed calf, because it gets it more frequently. Twelve hours between meals is deleterious to the health of a calf. It is far preferable to divide the milk so as to provide three instead of two rations per day.

In those cases where dairy cows are kept for supplying milk to customers, the rearing of calves at the same time is a difficult matter. Herein a substitute has to be found, not only for the fats, but also for the albumenoids which the milk contains. The matter would be much more feasible were dairymen to adopt the usual practice of disposing of the bull calves to the butcher at a few weeks old. Then only half the number of calves would have to be brought up.

The best substitute for milk is linseed, bruised and boiled before giving it to the calves. For the first month new milk should be given—six bottles a day—afterwards the linseed can be substituted, and the milk withdrawn gradually to two bottles or so. From  $\frac{1}{4}$  to  $\frac{1}{2}$  pound of linseed per day will be enough for the first month or two, but should be increased to one pound per day as the calf grows older.

Millet may be used in some proportion mixed with linseed, but not to displace it wholly. Neither mealie meal nor kaffir corn meal are to be recommended for calves.

It must be noted that the class of cows kept by milk suppliers are usually of a large breed, and often a high class bull is kept. The progeny are of the type which suffer most from ill-considered methods of upbringing, among which also losses from disease attributable to bad management are most frequent.

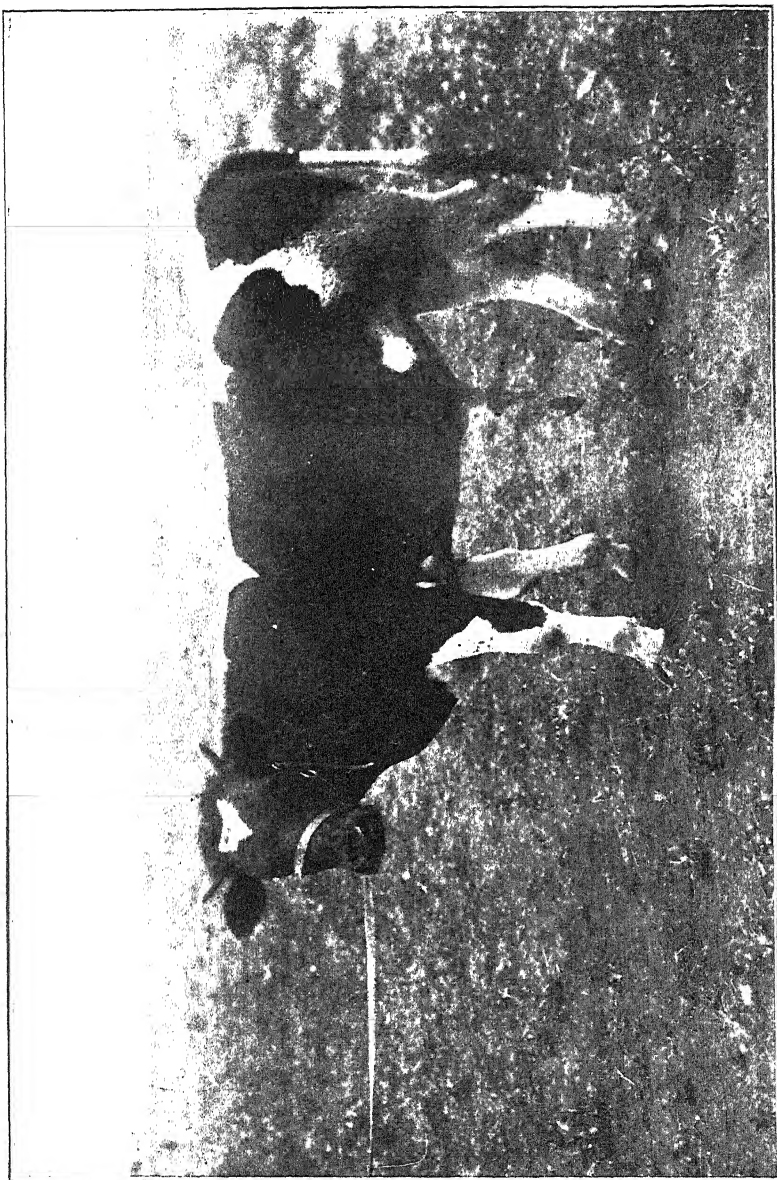
There is no difficulty attached to securing a supply of linseed cheaply since it can be grown in this country, and everyone can grow it for his own needs.

In addition to the hand feeding given to calves, when between two and three months old they are beginning to eat grass. For this purpose a paddock suitable to the number should be enclosed on a piece of ground that has been previously cultivated, and on which the grasses are more luscious than on the raw veldt.

All calves fed by hand should receive up to  $\frac{1}{2}$  pound of linseed per day after they are ten weeks old. They may be weaned from the separated milk and cod-liver-oil at about five months, but the linseed should be continued for a month or two or even much longer, unless plenty of green food can be given.

When calves have been thus well attended to for six or eight months they will do very well on good hay until the next season's grass. It would be ruination to their constitution to turn them out to feed for themselves on the dry veldt at this age; instead they should get all the hay they can eat.

*(To be continued.)*



Sir David.



## Milking.

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Of late years there has been a greater demand on the part of the public for a pure milk supply, and the chief responsibility in this connection rests upon the owners of cows. It is the duty of those engaged in the production and sale of milk to see that all the cows are in good health, and fed in such a manner as to produce sound milk; and some useful hints on this subject have recently been issued by the British Board of Agriculture in the form of a leaflet. Readers are reminded that it is essential that the milk from any cow which is not in perfect health should not be mixed with the general supply of the herd, and this point merits careful attention of the owner or his foreman. The milk from any cow continually ailing, should not even be given to pigs or poultry unless previously boiled, as there is always danger of the transmission of disease. In every herd of cows there are animals which will suffer from ailments of a temporary character. Such cases should be given immediate attention, and their milk for the time should not be used with the rest. Cleanliness is one of the most important items in connection with all branches of dairy work, and no amount of skill in the dairy will counteract ill treatment of cows or lack of cleanliness in milking, etc.

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The use of any organ of the animal body undoubtedly promotes its development, and this particularly applies to the udder, for the process of milking, if carried out thoroughly, increases the milking capacity. To secure the greatest development of the udder, it is necessary that the milking should be carried out very completely, and no milk should be left behind at the end of the operation. There are two reasons for withdrawing all the milk that can be obtained from the udder: firstly, to develop and increase the milking powers; secondly, to obtain the richest portions yielded during the whole of the milking, namely the "strippings" as they are termed, which contain from eight to ten per cent. of fat, while milk of average quality contains only 3.7 per cent. of fat. Failure to withdraw all the milk from the udder at the time of milking is

the commonest cause of cows drying off soon, for a prolonged removal of milk at each milking is effected.

The common method of milking—that of grasping the teat with the full hand, and exerting a slight downward pull at the time the hand is closed—is not effective in stripping the cow. Stripping is carried out by the method known as streak milking, in which the teat is taken between the thumb and fore finger, or fore finger and middle finger, then lightly pressed and drawn downwards. It is not, however, advisable for ordinary milking, on account of its being likely to irritate the teat externally, and even in some cases to cause inflammation. It is a vexed question as to which teats should be milked together. By taking, say, the two fore teats, and then the two hind teats, the position of the hands become somewhat cramped, but this is, on the whole, the best method. A good delivery of the milk to the pail may be got by grasping a near fore and an off hind teat, and then reversing the order. In the majority of cows, however, the hind teats yield the most milk, and, if one hand is being used to milk a fore and the other a hind teat, the operation is not usually completed simultaneously.

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Cases are sometimes met in which cows are very difficult to milk. Cows are frequently so at their first calving, but usually improve with milking or suckling a calf. Occasionally cows may become difficult to milk owing to the milker having for a lengthened period adopted a severe method of milking, such as the streak method, the result that being persons accustomed to more gentle procedure would find it difficult to milk such animals.

Milking may be performed with either wet or dry hands, in the former case the hands being moistened by drawing on to them a few streams of milk. Many competent persons advocate this method, but, taking all points into consideration, the dry method is the more cleanly of the two, and is that adopted by the best dairymen.

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The leaflet in question gives the following as the essentials of good milking, viz., that it should be performed:—  
(1) *quietly*: that is to say, the milk should be withdrawn

in a manner that will cause no discomfort to the cow; (2) *quickly*: if performed quickly more milk is obtained, for rapid milking appears to be beneficial in increasing the flow; (3) *thoroughly*: the last milk being the richest, must always be withdrawn.

Consideration is also given to the question of the times of milking. The common practice is to milk twice in twenty-four hours; and the more equally the time is divided the more uniform will be the quality of the milk produced. For example, if milking takes place at six o'clock in the morning, the next milking should be as near six in the afternoon as possible. This is easy to recommend, but it must be admitted that it is often difficult to carry out in practice, especially in the case of those farmers who supply warm milk for consumption in towns. Cows like to be fed and milked at regular intervals. If milking is delayed they become uneasy, and the irregularity may cause considerable depreciation in the amount of milk obtained. Cows which are left too long without milking get very distended udders, and may suffer considerable pain. Very heavy milkers have sometimes to be milked three times instead of twice a day, to relieve the pressure on the udder. Over-stocking, or allowing the udder to become unduly distended with milk by failing to milk a cow previously to exposing her for sale, at a market or sale, is a cruel practice. It frequently leads to inflammation of the udder, and often to the loss of one or more quarters.

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It is desirable that those who are anxious to improve their dairy stock should weigh the milk of each cow every morning, and note the weight in a book specially kept for the purpose. Or, if this cannot be done, each cow's milk should be weighed morning and evening one day a week, and multiplied by seven at the end of the milking period. This would give the approximate total. The daily record, however, is to be recommended. In conjunction with the record of the weight of milk yielded by each cow, at least an occasional test for the amount of butter-fat present should be made. The value of such records, which show both the quality and quantity of milk of individual cows

yielded during their lactation period, cannot be over-estimated. The value of the increased yield of the herd year after year, consequent on the judicious weeding out of inferior animals, well repays the small additional expense of the work entailed in making such records.—*Natal Agricultural Journal*.

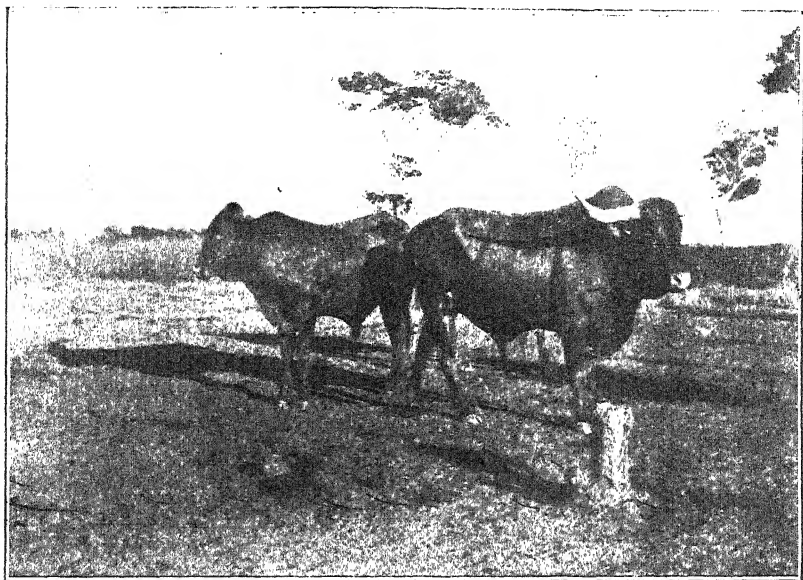
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## Feeding Dairy Cows.

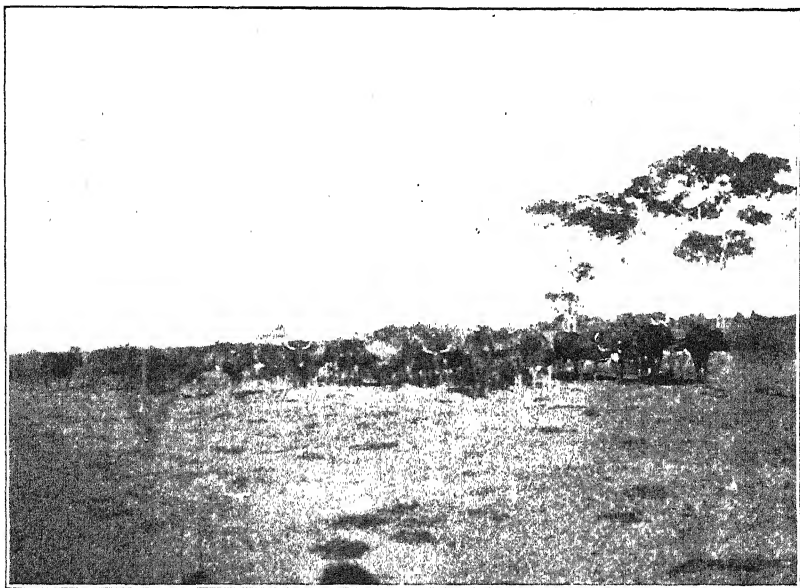
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A greater interest is now being taken in dairying in this country, due to the increase in the number of cattle and to the frequent importation of stock from the Colony. This being the case, farmers will naturally turn their attention to the economic feeding of their milking cows in order to supply them with a balanced ration which provides sufficient nutriment for the maintenance of the body and ensures a maximum yield of milk, at the same time considering how this may be arrived at at the least cost. This subject has been frequently written about, and numerous experiments carried out to determine the most suitable and economic ration, and various standards have been drawn up, as a result of these experiments. No cow, however, can be fed by any hard and fast rule, as owing to the varying temperament of the individual animal, each requires special treatment, and these standards of feeding can only be used as a guide, modifications being made to suit the nature of the animal, the different conditions ruling in this country, the nature of the feeding stuffs available, and the cost of same.

There is practically no market here for concentrated feeding stuffs, which usually consist of bye-products of the mill, gin, or packing factory, and the farmer has to depend upon the produce which he grows himself. Wheat bran nearly always enters into the composition of an American or German standard ration, cotton seed meal again is often advocated and extensively used; both of these products are practically beyond the reach of the Rhodesian farmer, the former owing to its high price, and the latter in not even being obtainable locally. To



Africander Bulls—Charter.



Group of Africander Cows and Calves—Charter.



replace either of these two ingredients in a ration some other food must be found containing a high proportion of protein, and which it is possible to produce on the farm. Bean meal, and ensilage containing a proportion of beans will probably be found the most suitable, and no doubt exists that beans can be grown locally.

Owing to the lack of facilities in this country for determining the constituents of the food stuffs grown and fed to dairy cows, it is necessary to glean information on this subject from other sources. This subject is most carefully and fully studied in America, and the results obtained made public for the benefit of anyone who cares to profit by conclusions obtained from scientific and practical investigations.

A bulletin on this subject issued by the Virginian Agricultural Experiment Station, entitled "Protein Requirements for Dairy Cows," contains most valuable information, and extracts have been freely made from it in compiling this article.

"The standard for feeding dairy cows suggested by Dr. Lehman is 29 pounds of dry matter, 2.5 pounds of digestible protein, 13 pounds of carbohydrates, and .5 pounds of fat; with a nutritive ratio of 1 : 5.7 for a 1,000-pound cow giving 22 pounds of milk per day."

This standard has been considered for some time to recommend larger amounts of nutrients than are found necessary in actual practice. Herds have been kept in thriving condition and have produced a quantity of milk above the amount set forth in the standard on a ration having a wider ratio and containing less dry matter.

"As all who have studied the question know, protein is the most expensive element to purchase, and yet it is always needed in very considerable quantities in the ration of a dairy cow. If it is possible, therefore, to reduce the amount actually needed, and still maintain maximum yields of milk and butter, and preserve the health of the herd, the great importance of this fact as an economic truth becomes apparent."

To ascertain if this was really the case the experiments described in this bulletin were undertaken.

Four groups of four cows each were selected, as uniform in all respects as it was possible to find them.

As these cows were in perfect health and thriving condition, and making good records in milk and butter yields at a reasonable cost, on a balanced ration not according to the Lehman standard, it was decided to continue to feed them on this same ration for thirty days, then for eighty days on experimental rations, and again at the end of this period to resume the ration used for the first thirty days of the experiment. By this means it was considered that a fair comparison could be made between the value of the different rations.

The following table gives the digestive nutrients of the foods used :

Kind of Feed.	Dry matter in 100 lbs.	Digestible nutrients in 100 lbs.		
		Protein.	Carbo hydrates.	Fat.
Corn and cob meal ... ..	90·08	4·79	63·99	3·13
Cotton seed meal ... ..	94·70	34·41	22·87	8·72
Wheat bran ... ..	91·16	11·57	42·94	1·79
Corn silage ... ..	34·00	1·48	19·52	·74
Corn stover ... ..	83·28	1·59	43·91	1·11
Millet hay ... ..	92·30	4·50	51·60	1·34

"The concentrates of the rations consumed during the initial thirty days were mixed in the proportion of 60 pounds of corn and cob meal, 30 pounds of cotton seed meal, and 10 pounds of wheat bran. Naturally the larger part of the protein was provided by the concentrates and the balance chiefly by the silage. The rations were fed on the basis of 1,000 pounds of live weight, and practically the same average amount of food was eaten by the animals in each group.

"As compared with the standard ration, it is noteworthy that the amount of dry matter was considerably lower than that called for; which was also true of the protein. The amount of the digestible carbohydrates ap-

proximated that called for in the standard, while the amount of fat was slightly in excess of the quantity called for.

"The nutritive ratio of the standard ration is 1:5.7, while the ratio of the food actually eaten by the cows varied from 1:7.9 to 1:8.2."

### RATIONS CONSUMED DURING INITIAL 30 DAYS.

Group.	Feed.	Lbs.	Lbs dry matter	Lbs. of Digestible			Nutritive ratio.
	Kind.			Protein.	Carbo hy- drates.	Fat.	
Stand- ard.			.29	2.5	13.	.5	1:5.7
I.	Corn and cob meal 60	7.88	7.22	1.13	3.90	.37	
	Cotton seed meal 30						
	Bran ... 10						
	Silage ... ..	40.03	13.61	.59	7.81	.30	
	Stover ... ..	2.70	2.25	.04	1.19	.03	
	Totals ...		23.08	1.76	12.90	.71	1:8.2

"The other three groups varied very slightly from the above, Group II. ate 23.75 lbs. of dry matter, having a nutritive ratio of 1:8.1; Group III. ate 21.99 lbs. of dry matter with a ratio of 1:7.9, and Group IV. ate 23.47 lbs. of dry matter with a ratio of 1:8.1.

"It will thus be seen that the sixteen animals fed as these were consumed nearly the same quantity of digestible food throughout the thirty days period. This is the best evidence that the groups were as equally balanced as it was possible to divide animals, each having its own peculiarities of temperament. Hence it would appear that whatever differences are noted later on could hardly be attributed to the individuality of the cows in the several groups, but rather to the influence of the rations fed.

# RATIONS CONSUMED DURING 80 DAYS' EXPERIMENTAL PERIOD.

Group.	Feed.	Lbs.	Lbs. dry matter	Lbs. of Digestible			Nutritive ratio.
	Kind.			Protein.	Carbohy- drates.	Fat.	
Stand- ard.			29·	2·5	13·	·5	1:5·7
I.	Corn and cob meal 30	6·87	6·38	1·60	2·55	·44	
	Cotton seed meal 60						
	Bran ... .. 10						
	Silage ... ..						
	Stover and millet hay	37·73	12·87	·56	7·36	·28	
		2·69	2·28	·05	1·21	·03	
	Totals ...		21·53	2·21	11·12	·75	1:5·8
II.	Corn and cob meal 45	9·17	8·46	1·72	3·98	·51	
	Cotton seed meal 45						
	Bran ... .. 10						
	Silage ... ..						
	Stover and millet hay	41·94	14·26	·62	8·19	·31	
		2·75	2·32	·05	1·24	·03	
	Totals ...		25·04	2·39	13·41	·85	1:6·4
III.	Corn and cob meal 60	9·00	8·25	1·29	4·46	·42	
	Cotton seed meal 30						
	Bran ... .. 10						
	Silage ... ..						
	Stover and millet hay	40·82	13·88	·60	7·97	·30	
		2·78	2·35	·06	1·25	·03	
	Totals ...		24·48	1·95	13·68	·75	1:7·9
IV.	Corn and cob meal 75	8·50	7·73	·84	4·74	·33	
	Cotton seed meal 15						
	Bran ... .. 10						
	Silage ... ..						
	Stover and millet hay	40·31	13·70	·60	7·87	·30	
		2·43	2·05	·05	1·09	·03	
	Totals ...		23·48	1·49	13·70	·66	1:10·2

"It is noteworthy that the ration consumed by Group I. approximates that called for by the so-called American



Aberdeen Angus Bull. "Jerome Junior," aged 18 months. Campbell Bros., Latentbwe Farm, N.E. Rhodessia.



standard; and that if these animals had eaten heartily, it would have corresponded closely to the Lehman standard. The experiment was designed with the expectation that Group I. would receive a ration approximating the amount of protein called for by the Lehman standard; and decreasing in Groups II., III. and IV. as it actually did, until it would fall practically a pound below the standard, which proved to be the case with Group IV. It was believed that if these cows were fed for a period of 30 days on a uniform ration, and then changed to rations showing such a markedly varying composition and wide divergence in nutritive ratios for a period of 80 days, that the effect of these rations on the production of milk and butter fat would be clearly demonstrated; as well as their influence on the health and general well-being of the cows. Upon transferring the cows back to a standard ration for 30 days, it was believed that any violent effects due to feeding the highly differentiated rations would disappear; and then it might reasonably be concluded that the results observed were due to the rations fed during the experimental period.

"The grain ration fed during the final 30 days was exactly the same as that fed during the first 30 days, and the consumption of digestible foodstuffs did not vary markedly in any instance from that witnessed with the several groups during the initial feeding period.

"The influence of the rations on the weight of the cows indicates that with Group I. there was a loss in weight in three out of four instances, the total loss during the specialised feeding period of 80 days amounting to 201 pounds. Group II. gained 43 pounds, one animal in this group, however, lost 44 pounds; the loss in this instance was probably due in a measure to an injury to the udder resulting from another cow stepping on it. Group III. gained 56 pounds. Group IV. lost 96 pounds, three out of the four animals showing a loss. The losses, however, were not large for cows in heavy milk flow, and probably the variations in live weight were no greater than would have followed in all groups if they had received the same ration fed during the initial period for the 80 days under discussion. When the cows received a wider nutritive ratio during the last 30 days, it was noteworthy that they all gained in weight, but as they were in

good condition during the specialised feeding period, one of two conclusions with reference to this point may be drawn: First, that the ration fed during the last period was somewhat fattening; or, that the ration fed during the specialized period was somewhat narrow. It does not seem, however, that either set of rations could be condemned on the score of their influence on the live weight and the health and well-being of the animals.

"The food eaten per head per day, per gallon of milk and pound of butter, in the form of both roughness and concentrates, compares favourably with that required in former experiments made by the authors of the bulletin, and indicates that the rations were well adapted to the needs of the sixteen cows under experiment. It is noteworthy that the amount of roughness and concentrates per gallon of milk and pound of butter increased quite uniformly throughout the test. As the lactation advanced, nearly five months being covered during the progress of the experiment, it is not surprising that there should have been a slight increase in the consumption of both concentrates and roughness per gallon of milk and pound of butter; but the uniformity of the results demonstrates that all the rations were well adapted to the nutrition of the cows, and that the quantity of the food consumed in the form of roughness and concentrates for the production of a gallon of milk and a pound of butter was in accord with what might have been expected.

"The results obtained during the 80 day period when the specialized rations were fed, are remarkably uniform, showing that the feeding of a ration containing 2.39 pounds of digestible protein, or not far from the Lehman ration, compared with one containing only 1.49 pounds of protein or virtually one pound less than the amount required by the standard, gave practically the same results in practice.

The following table shows the result of these experiments:—

## FOOD CONSUMED.

Group.	Total.		Lbs. per head per day.		Lbs. per gallon milk.		Lbs. per lb. butter.	
	Roughage.	Concentrates.	Roughage.	Concentrates.	Roughage.	Concentrates.	Roughage.	Concentrates.
Initial 30 Days.								
I.	5128	946	42.7	7.9	15.2	2.8	40.7	7.5
II.	5177	1005	43.1	8.4	15.0	2.9	41.1	8.
III.	4640	985	38.7	8.2	13.5	2.9	35.6	7.6
IV.	5235	976	43.6	8.1	15.8	2.9	44.4	8.3
80 Days of Experiment.								
I.	12934	2197	40.4	6.9	17.4	3.0	43.1	7.3
II.	14301	2933	44.7	9.2	16.4	3.4	43.	8.8
III.	13951	2880	43.6	9.	16.2	3.3	42.4	8.7
IV.	13676	2720	42.7	8.5	17.4	3.5	46.8	9.3
Final 30 Days.								
I.	5104	825	42.5	6.9	25.2	4.1	66.5	10.8
II.	5726	1118	47.7	9.3	20.1	3.9	52.2	10.2
III.	5426	1080	45.2	9.	18.6	3.7	47.8	9.5
IV.	5358	1020	44.6	8.5	19.2	3.7	51.6	9.8

"A consideration of the profit on milk and butter substantiates the fact that the wide variation in the protein content of the rations utilised did not materially affect the total profit on milk and butter per group. There was a slight falling off in the profit on milk and butter during the 80 day period, and during the final 30 day period, but this would naturally be expected owing to the advanced lactation period. It is especially noteworthy that with the highly differential rations fed during the 80 day experimental period, the profit on milk and butter with the several groups and the profit per day was practically the same. In other words, as large profits were made by the cows receiving the ration markedly deficient in protein, as were made by those receiving the ration which closely

approximated the requirements of the Lehman standard. It can be said therefore, that the rations as far as the profit on milk and butter were concerned were practically of equal value.

"Referring to the comparison of the rations eaten during the initial 30 days, it is noteworthy that the amount of protein consumed per head per day per group was nearly 0.75 of a pound below that called for by the Lehman standard. The amount of carbohydrates was practically the same, the fat about 0.2 of 1 per cent: higher, and the dry matter about six pounds less. The nutritive ratio averaged 1 : 8 as compared with 1 : 5.7 called for in the Lehman standard. These results show that the cows yielded dairy products at a rational cost, and were in perfect health and physical condition, though receiving a ration much below the so-called standard; which would indicate clearly that much less protein and dry matter can be fed, and maximum yields of milk and butter obtained, and the animals kept in perfect condition than has previously been believed possible."

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### **Bacon and Ham Factory.**

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A walk through a small modern factory surprises one by the simplicity and smallness of the plant required.

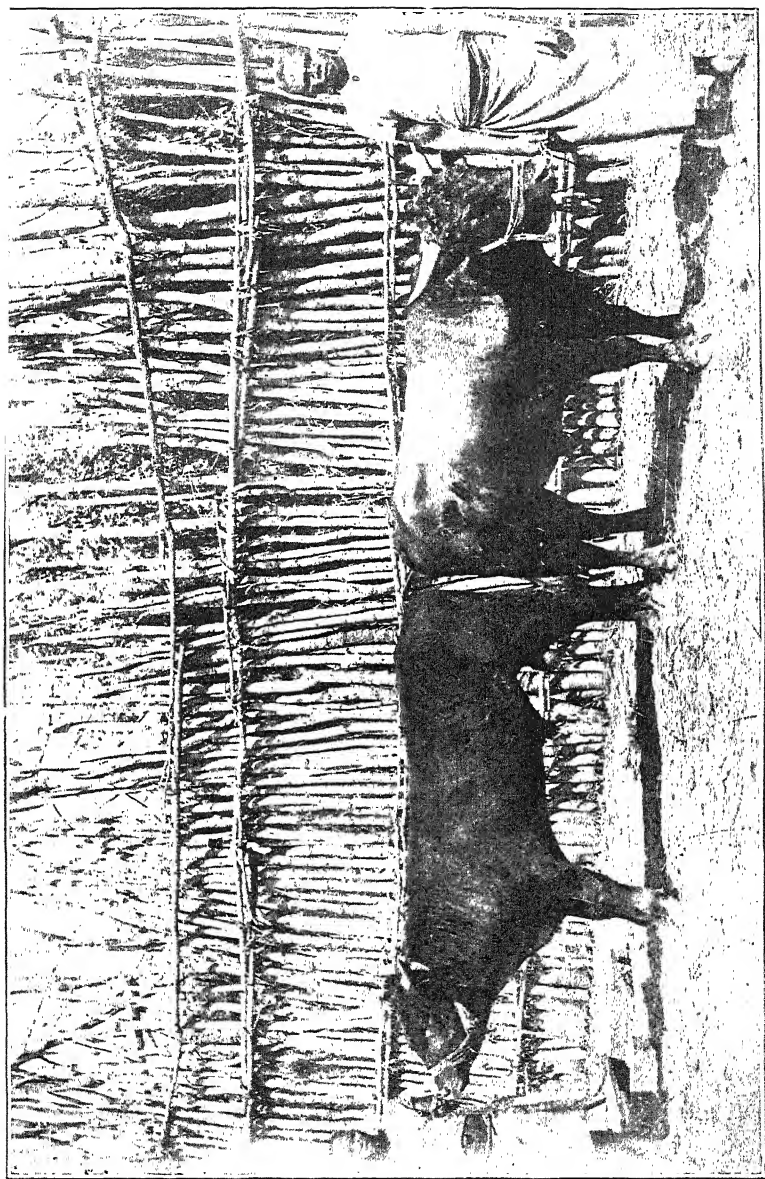
Beyond a few pens to keep pigs in as they are received from the farmers, a small number of 12 to 24 hour starving pens are needed adjoining the slaughter quarters.

Over the slaughter pen is a rail, and with a hoisting apparatus the pig is pulled up, and can thence be run along to the Dumping Table, beside which is the scalding tank. The slaughter pen is of course cemented, and has a good drainage furrow and water supply.

A lever handle hoists the scalded pig from the tank on to the scuttling Table.

A second winch then puts the pig again up to the overhead rail, on which the hooks slide, and thus after disembowelling, the carcass goes into the chilling chamber, where the temperature is 30 degrees Fahr.

The pork is then taken off the hooks, and packed on the floor of the curing room, where the temperature is kept at 35 degrees Fahr.



Devon Bulls, aged 18 and 16 months. Campbell Bros., Lutembwe Farm, Fort Jameson, N.E. Rhodesia.



The two latter compartments are lined with 8 inches of Silicate of Cotton, and are not affected by the outside temperature.

The Brine used is composed of salt and saltpetre with the very smallest percentage of preservative.

This little plant is capable of treating 50 to 80 pigs per week.

The Ladybrand Factory is quite prepared to have as few as 20 pigs per week for some few months of the first winter and spring.

Bacon needs from 10 to 14 days' curing before being ready for sale.

In any part of Rhodesia such plants could be erected at a cost of about £2,000, and with another similar sum put aside for the buying of pigs, business could be run on a moderate scale.

Chloride of Calcium is mixed with the water in the tubes above the chilling room to prevent it from freezing.

The Hercules Ice Machine Coy., of Durban, stock all necessary machinery for a Bacon Factory, and supply with the plant the necessary lard and sausage and Polony making machinery.

Exactly the same brine and quarters are used for the Hams as for the Bacon.

Mr. A. B. White was in charge of the erection of all the Building, Machinery, etc., at the Ladybrand Factory, and is well known in connection with the installing of most of the Freezing Plants yet erected in the O.R.C.

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## Correspondence.

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TO THE EDITOR, "AGRICULTURAL JOURNAL."

SIR,—

I am afraid that some folks on reading Mr. McIlwaine's interesting article on orange culture, in your February number, may form exaggerated notions of the profits to be gained thereby. I spent several months in California in 1903, and visited a great many orange plantations, especially about Pasadena, which is within 7 or 8 miles of Los Angeles, a city of over 300,000 inhabitants. With one consent the orange growers told me that there was no profit in it, that the railways and the middlemen got it all.

I saw the most beautiful fruit being packed (it is quite difficult to get good fruit to buy in California, all the best is sent away). Wells down hundreds of feet, elaborate pumps and everything on the finest and most magnificent scale—but no profits.

Near San Diego I saw them constructing flumes to bring water scores of miles over the mountains, but who was going to pay for it I do not know. I need not spin a long yarn, for it all comes to the same thing, but one instance I was able to corroborate both there and at home. It was of a couple of hard working young fellows who had put in (I am afraid to say how many) tens of thousands of pounds into their ranche, and they told me that they never had made "skof" out of it. There are whole tracts of country in California laid out in small plots (ranches) of 20 to 100 acres, and they are waiting to be sold to "The Englishman" (i.e. fool). I saw scores of "ranches," which had been planted with orange groves by the unfortunate "Englishman," but the trees were dead, the owner was broke and had departed to try his luck elsewhere. Water too expensive, and even in the case I quote above, where every appliance was available, there was no profit.

It is a nice employment if you have got plenty of money to live on; about Pasadena there are a lot of people with ample private means, and the price they get for their fruit does not worry them.

Yours faithfully,

I. FFOLLIOTT DARLING.

Hatfield,

Salisbury, March 17th, 1908.

### A WARNING.

A few weeks ago I noticed some black aphides on a young lemon tree of mine. I made carelessly some tobacco wash out of old stalks and leaves, that were lying about, and apparently made it too strong, for after spraying the tree a few times with it, all the young shoots died off, and afterwards most of the foliage. Since then further experiments have shown me that if the wash is strong enough to kill off the insect, it also injures the tree.

I. FF

Birkdale, Sipolilo,  
March 3rd, 1908.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

DEAR SIR,—

Regarding Mr. Bevan's interesting paper on Sheep, in the "Agricultural Journal" for June last, and the "lean to" described by Mr. Maclaurin, many farmers in the out districts are not yet so far advanced as to provide brick and iron sheds for their sheep, and the building described, though admirable for farms near town, does not appear to offer sufficient protection against the ingress of leopards, etc., for those outside.

Whilst at the Zambesi recently, I noticed that the Portuguese natives there build a pole and daaga shed for sheep which is an improvement on the ordinary Kaffir hut, which Mr. Bevan so strongly condemns.

It is a pole shed about twelve feet wide and 18 feet long with side walls 8 feet high, and a thatched gable roof with principals every four feet.

The floor of the shed is of strong split withies, or bamboos, woven into squares of six feet each way—the interstices of the mesh being about  $\frac{3}{4}$  inch wide—so that six squares make the complete floor.

This basket work floor is supported on rough pole trestles at a height of about 2 feet off the ground, and the sheep enter the shed by an inclined gangway.

All the liquid excreta, and a large quantity of the dry, runs through the false flooring, which can be taken up from time to time, and beaten to remove the dried dung, and the space beneath the flooring can be cleaned out at the same time.

In order to leave free ventilation only the sides of the shed exposed to the prevailing winds are daaga'd. The eaves come well down and protect against rain.

Yours faithfully,

H. A. WOODS.

Rhodes Inyanga Farms,  
22nd February, 1908.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

DEAR SIR,—

I believe that farmers in Rhodesia are now beginning to go in more for Lucerne cultivation, the most valuable of all forage crops, where one is fortunate enough to own suitable land for growing this crop.

But, I notice from my correspondence and other sources, that there is abroad in this country, a diversity of opinion, as to the value or otherwise of sowing lucerne with a nursery crop.

Personally I have never been in favour of this method; and in support of this opinion would like to quote from Mr. Coburn's (Secretary Kansas Department of Agriculture) article on Lucerne growing.

#### "NO NURSE CROP.

"Is is a common enough practice, especially in hot districts, to sow a grain crop with the lucerne seed, under the impression that the taller crop will protect the shorter from the intense heat of the sun." This practice has often enough been condemned in Australia.

"The question of a nurse crop has sufficiently passed the experimental stage to say that lucerne should be planted alone.

"There have been satisfactory results from seeding with oats or barley, but the success *was in spite of*, and *not because of* the nurse crop.

"The young lucerne after attaining some height, is aided by frequent clippings, and needs the sunlight, neither of which is permissible if the nurse crop be present. The greatest disadvantage of the nurse crop is that in many cases it takes from the soil the moisture needed by the young lucerne at some time during the season.

"A light nurse crop may be advantageous on a light soil that blows about badly, but it is preferable to have as protection only the stubble from a previous grown crop.

"Lucerne demands, at a risk of failure, exclusive possession of a soil or seed bed, and that in the best possible condition. It is very exacting in its requirements, and for neglect of these while young it refuses to respond when older."

I am, Sir,

Yours truly,

FRED. E. WIENHOLT.

## Salisbury Show.

The 10th Annual Show of the Rhodesian Agricultural and Horticultural Society is to be held in the Society's Grounds, Salisbury, on Friday and Saturday, June 26th and 27th, 1908.

The following is the Prize List:—

### SECTION A.—CATTLE.

First prize for each Class, £1 10s.

Second prize for each Class, 15s.

Entry fee, each Class, 7s. 6d.

#### Class.

1. Best South African Bred Shorthorn Bull.
2. Best South African Bred Friesland Bull.
3. Best South African Bred Bull, any other variety.
4. Best Rhodesian Bred Bull (yearling), any improved breed; distinct breed to be declared.
5. Best Imported Bull (oversea, other than South African bred).
6. Best South African Bred Africander Bull, over 4-tooth.
7. Best South African Bred Africander Bull, 4-tooth and under.

#### Cows.

8. Best South African Bred Shorthorn Cow.
9. Best South African Bred Friesland Cow.
10. Best South African Bred Cow, any other distinct breed.
11. Best Imported Cow or Heifer from oversea, other than South African bred, any breed.
12. Best Dairy Cow, to be milked twice. To be on Show Ground the previous evening at 5 o'clock. To be milked dry by Exhibitor in presence of Steward. Test milking to be at 7 a.m. and 4 p.m.
13. Best Pair of Cross Cows, Rhodesian bred; cross to be declared.
14. Best Pair of Angoni Cows.
15. Best Pair of Mashona Cows.
16. Best Africander Cow.

#### HEIFERS.

17. Best South African Bred Shorthorn Heifer.
18. Best South African Bred Friesland Heifer.
19. Best South African Bred Heifer, any other distinct breed.
20. Best Rhodesian Bred Shorthorn Heifer.
21. Best Rhodesian Bred Friesland Heifer.
22. Best Africander Heifer.
23. Best Pair of Yearling Cross Heifers; first cross, to be bred in Mashonaland from native or Angoni cows.
24. Best Pair of Yearling Heifers, any breed; bred in Mashonaland.
25. Best Africander Heifer.

OXEN.

Class.

26. Best Pair of Yearling Bullocks.
27. Best Span of 10 Oxen, any distinct native breed.
28. Best Span of 10 Oxen, bred by Exhibitor; any cross, to be declared.
29. Best Span of 10 Oxen, Rhodesian bred.
30. Best Pair of Slaughter Bullocks.

SECTION B.—HORSES.

First prize for each Class, £1 10s.

Second prize for each Class, 15s.

Entry fee, 7s. 6d. each Class.

Class.

31. Best Stallion.
32. Best Mare (with foal at foot).
33. Best Colt (bred in Rhodesia) under 3 years and over 12 months.
34. Best Filly.
35. Best Foal (under 12 months).
36. Best Hack over 14.1 h.h., exhibited under saddle.
37. Best Hack 14.1 h.h. or under, exhibited under saddle.
38. Best Hack, to be ridden by a lady.
39. Best Hack, owned and ridden by a *bona-fide* farmer.
40. Best Hack, bred in Rhodesia (Stallion, Mare, or Gelding), to be exhibited under saddle.
- 41.
42. Best One Horse Turn-out, horse to be over 14.1 h.h.
43. Best Pony Turn-out (Single), 14.1 h.h. or under.
44. Leaping Competition for horses over 14.1 h.h.
45. Leaping Competition for horses 14.1 h.h. or under.
46. Leaping Competition by half-sections.
47. Polo Pony (made).
48. Polo Pony (unmade).
49. Tandem Riding.
50. Section Tent Pegging.

SECTION C.—MULES.

First prize for each Class, £1 10s.

Second prize for each Class, 15s.

Entry fee, 7s. 6d. each Class.

Class.

51. Best One Mule Turn-out.
52. Best Pair of Mules in Cart or Carriage.
53. Best Team of 4 or more.
54. Best Riding Mule, to be shown under saddle.
55. Mule Race.

SECTION D.—DONKEYS.

First prize for each Class, £1.

Second prize for each Class, 10s.

Entry fee, 5s. each Class.

Class.

56. Best Jackass for breeding purposes.
57. Best Jenny, for breeding purposes, with foal at foot.
58. Best Single Donkey Turn-out, to be driven in Show Yard.
59. Best Riding Donkey, to be exhibited under saddle.
60. Donkey Race, to be ridden once round the ring by children under 14 years of age.

## SECTION E.—SHEEP.

First prize for each Class, £1 10s.

Second prize for each Class, 10s.

Third prize for each Class, 5s.

Entry fee, 2s. 6d. each Class.

Exhibits must have been in possession of Exhibitor not less than 3 months prior to date of Show.

## Class.

61. Best Pure Bred Merino Ram.
62. Best Pure Bred Merino Ewe.
63. Best Pure Bred Persian Ram.
64. Best Pure Bred Persian Ewe.
65. Best Pure Bred Africander Ram.
66. Best Pure Bred Africander Ewe.
67. Best Pure Bred Merino Ram, bred in Rhodesia.
68. Best Pure Bred Merino Ewe, bred in Rhodesia.
69. Best Pure Bred Persian Ram, bred in Rhodesia.
70. Best Pure Bred Persian Ewe, bred in Rhodesia.
71. Best Pure Bred Africander Ram, bred in Rhodesia.
72. Best Pure Bred Africander Ewe, bred in Rhodesia.
73. Best Pure Bred Ram, any other breed, bred in Rhodesia.
74. Best Pure Bred Ewe, any other breed, bred in Rhodesia.
75. Best Pen of Three Cross-bred Ewes (Rhodesian bred), cross to be declared.
76. Best Pen of Three Cross-bred Ewes, 4-tooth and under.
77. Best Pen of Three Wethers (any breed), fit for slaughter.
78. Best Pen of Three Wethers (Fat-tailed), fit for slaughter, bred in Southern Rhodesia by Exhibitor.
79. Best Pen of Six Pure Bred Lambs, under 2-tooth, bred in Southern Rhodesia by Exhibitor.
80. Best Pen of Six Cross Bred Ewe Lambs, under 2-tooth (cross to be declared.)
81. Best Pen of Three Wethers (any breed), fit for slaughter, not Rhodesian bred.

*Special Prizes.*

Silver Medal presented by Mr. E. Ross Townsend for best Rhodesian bred Persian Ram in the Yard.

Silver Medal presented by Mr. E. Ross Townsend for best Rhodesian bred Ram, any Woolled Breed.

## SECTION F.—GOATS.

First prize for each Class, £1.

Second prize for each Class, 10s.

Entry fee, 2s. 6d. each Class.

Exhibits must have been in possession of Exhibitor not less than 3 months prior to date of Show.

## Class.

83. Best Pure Bred Angora Ram.
84. Best Pure Bred Angora Ewe.
85. Best Pure Bred Angora Ram, Rhodesian bred.
86. Best Pure Bred Angora Ewe, Rhodesian bred.
87. Best Pure Bred Boer Goat Ram.
88. Best Pure Bred Boer Goat Ewe.
89. Best Pure Bred Boer Goat Ram, Rhodesian bred.
90. Best Pure Bred Boer Goat Ewe, Rhodesian bred.
91. Best Pure Bred Ram, any other breed.
92. Best Pure Bred Ewe, any other breed.
93. Best Pen 3 Cross Bred Ewes, cross to be declared.
94. Best Pen 3 Cross Bred Boer Goat Wethers, fit for slaughter, Rhodesian bred.
95. Best Pen 3 Angora Goat Wethers, fit for slaughter, Rhodesian bred.
96. Best Pen 3 Boer Goat Wethers, fit for slaughter.

## Class.

97. Best Pen 3 Angora Goat Wethers, fit for slaughter.
98. Best Pen 3 Angora Kids, under 2-tooth, Rhodesian bred.
99. Best Pen 3 Boer Goat Kids, under 2-tooth, Rhodesian bred.
100. Best Milch Goat (to be milked in Show Yard).

Milch Goat to be milked under same conditions as milch cows.

## SECTION G.—SWINE.

First prize for each Class, £1.

Second prize for each Class, 10s.

Entry fee, 2s. 6d. each Class.

## Class.

101. Best Yorkshire Boar.
102. Best Yorkshire Sow.
103. Best Berkshire Boar.
104. Best Berkshire Sow.
105. Best Tamworth Boar.
106. Best Tamworth Sow.
107. Best Large Black Boar.
108. Best Large Black Sow.
109. Best Boar, 12 months old and under, any distinct breed, bred in Rhodesia.
110. Best Sow, 12 months old and under, any distinct breed, bred in Rhodesia.
111. Best Boar, any other breed not already mentioned.
112. Best Sow, any other breed not already mentioned.
113. Best Cross Bred Sow, cross to be declared.
114. Best Pen of Three Barrow Pigs, under twelve months old.
115. Best Slaughter Pig, to weigh not more than 200 and not less than 140 lbs.
116. Best Sow with Litter of not less than six and not exceeding ten weeks old.

## SECTION H.—POULTRY.

First prize for each Class, 10s.

Second prize for each Class, 5s.

Entry fee, 2s. 6d. each Class.

## Class.

117. Best Brahma Cock.
118. Best Brahma Hen.
119. Best Brahma Cockerel.
120. Best Brahma Pullet.
121. Best Black Spanish Cock.
122. Best Black Spanish Hen.
123. Best Black Spanish Cockerel.
124. Best Black Spanish Pullet.
125. Best Andalusian Cock.
126. Best Andalusian Hen.
127. Best Andalusian Cockerel.
128. Best Andalusian Pullet.
129. Best Game Cock.
130. Best Game Hen.
131. Best Cochín Cock.
132. Best Cochín Hen.
133. Best Plymouth Rock Cock.
134. Best Plymouth Rock Hen.
135. Best Black Orpington Cock.
136. Best Black Orpington Hen.
137. Best Black Orpington Cockerel.
138. Best Black Orpington Pullet.
139. Best Buff Orpington Cock.
140. Best Buff Orpington Hen.
141. Best Buff Orpington Cockerel.
142. Best Buff Orpington Pullet.

## Class.

143. Best White Orpington Cock.
144. Best White Orpington Hen.
145. Best White Orpington Cockerel.
146. Best White Orpington Pullet.
147. Best Dark Dorking Cock.
148. Best Dark Dorking Hen.
149. Best Silver Dorking Cock.
150. Best Silver Dorking Hen.
151. Best White Leghorn Cock.
152. Best White Leghorn Hen.
153. Best White Leghorn Cockerel.
154. Best White Leghorn Pullet.
155. Best Buff Leghorn Cock.
156. Best Buff Leghorn Hen.
157. Best Brown Leghorn Cock.
158. Best Brown Leghorn Hen.
159. Best Black Minorca Cock.
160. Best Black Minorca Hen.
161. Best Black Minorca Cockerel.
162. Best Black Minorca Pullet.
163. Best Ancona Cock.
164. Best Ancona Hen.
165. Best White Wyandotte Cock.
166. Best White Wyandotte Hen.
167. Best White Wyandotte Cockerel.
168. Best White Wyandotte Pullet.
169. Best Silver Wyandotte Cock.
170. Best Silver Wyandotte Hen.
171. Best Silver Wyandotte Cockerel.
172. Best Silver Wyandotte Pullet.
173. Best Partridge Wyandotte Cock.
174. Best Partridge Wyandotte Hen.
175. Best Partridge Wyandotte Cockerel.
176. Best Partridge Wyandotte Pullet.
177. Best White Minorca Cock.
178. Best White Minorca Hen.
179. Best Pen of Colonial Fowls, consisting of 2 Hens and a Cock.
180. Best Hen with Chickens, not less than 8 chickens.

## DUCKS.

181. Best Pekin Duck and Drake.
182. Best Aylesbury Duck and Drake.
183. Best Muscovy Duck and Drake.
184. Best Duck and Drake for table use.
185. Best Duck and Drake, any other breed.

## GEESE.

186. Best Goose and Gander.

## TURKEYS.

187. Best Gobbler.
188. Best Hen.
189. Best Gobbler (American Bronze).
190. Best Hen (American Bronze).

## SECTION I.—PRODUCE.

Entry fee, 2s. 6d. each Class.

Except in Classes where First Prize is 5s.—Entry fee, 1s.

Class.	1st prize.	2nd prize.
191. Best 10 lbs. Salt Butter, to be handed to Secretary not later than 2 months before date of Show..	£2 0 0	£1 0 0
192. Best 2 lbs. Fresh Butter .. .. .	0 10 0	0 5 0
193. Best 2 lbs. Fresh Butter, to be handed to Secretary 7 days before date of Show .. .. .	0 10 0	0 5 0

Class.	1st prize.	2nd prize.
194. Best Assortment of Jams (not less than 3 kinds) in 2 lb. jars .. .. .	£0 10 0	£0 5 0
195. Best Assortment of Jellies (not less than 3 kinds) .. .. .	0 10 0	0 5 0
196. Best Assortment of Marmalade (not less than 3 kinds) in 2 lb. jars .. .. .	0 10 0	0 5 0
197. Best 2 lbs. Strained Honey .. .. .	0 5 0	0 2 6
198. Best Three Sections Comb Honey .. .. .	0 5 0	0 2 6
199. Best Assortment of Bottled Fruits .. .. .	0 10 0	0 5 0
200. Best Assortment of Bottled Preserves .. .. .	0 10 0	0 5 0
201. Best 5 lbs. Dried Apricots .. .. .	0 10 0	0 5 0
202. Best 5 lbs. Dried Peaches .. .. .	0 10 0	0 5 0
203. Best Assortment of Chutney (3 varieties) .. .. .	0 10 0	0 5 0
204. Best Assortment of Pickles (3 varieties) .. .. .	0 10 0	0 5 0
205. Best Loaf of Home-made Bread (White) not to weigh more than 2 lbs. ....	0 5 0	0 2 6
206. Best Loaf of Home-made Bread (Brown) not to weigh more than 2 lbs. ....	0 5 0	0 2 6
206½. Exhibit of Bread made from Wheat grown in Rhodesia, name of miller and grower to be stated .. .. .	0 10 0	0 5 0
207. Best dozen Hen Eggs (to be weighed) .. .. .	0 5 0	0 2 6
208. Best dozen Duck Eggs (to be weighed) .. .. .	0 5 0	0 2 6
209. Best dozen Muscovy Duck Eggs (to be weighed) .. .. .	0 5 0	0 2 6
210. Best dozen Goose Eggs (to be weighed) .. .. .	0 5 0	0 2 6
211. Best dozen Turkey Eggs (to be weighed) .. .. .	0 5 0	0 2 6
212. Best Ham, grown and cured in Rhodesia .. .. .	0 10 0	0 5 0
213. Best Side of Bacon, grown and cured in Rhodesia .. .. .	0 10 0	0 5 0
214. Best 5 lbs. Lard .. .. .	0 10 0	0 5 0

## SECTION J.

Entry fee, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
215. Best bag of Wheat, 100 lbs. .. .. .	£1 10 0	£0 15 0
216. Best bag of Oats, 100 lbs. .. .. .	1 0 0	0 10 0
217. Best bag of Barley, 100 lbs. .. .. .	1 0 0	0 10 0
218. Best bag of White Mealies, 100 lbs. .. .. .	1 0 0	0 10 0
219. Best bag of Yellow Mealies, 100 lbs. .. .. .	1 0 0	0 10 0
220. Best bag of "Hickory King," 100 lbs. .. .. .	1 0 0	0 10 0
221. Best bag of "Boone County," 100 lbs. ....	1 0 0	0 10 0
222. Best bag of "Horse Tooth," 100 lbs. ....	1 0 0	0 10 0
223. Best 10 Cobs "Horse Tooth" .. .. .	1 0 0	0 10 0
224. Best 10 Cobs "Boone County" .. .. .	1 0 0	0 10 0
225. Best 10 Cobs "Golden Eagle" .. .. .	1 0 0	0 10 0
226. Best 10 Cobs "Funks' 90 days" .. .. .	1 0 0	0 10 0
227. Best 10 Cobs "Salisbury White" .. .. .	1 0 0	0 10 0
228. Best 10 Cobs any other declared variety or cross .. .. .	1 0 0	0 10 0

Classes 223 to 228 inclusive to be judged by the score card, according to the rules of the Illinois Maize Breeders' Association.

## SECTION K.

Entry fee, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
229. Best 25 lbs. Linseed .. .. .	£0 10 0	£0 5 0
230. Best 50 lbs. Sunflower Seed .. .. .	0 10 0	0 5 0
231. Best bag of Buck Wheat, 100 lbs. .. .. .	0 10 0	0 5 0
232. Best bag of Beans (named), 50 lbs. ....	0 10 0	0 5 0
233. Best bag of Peas, Table, 50 lbs. ....	0 10 0	0 5 0
234. Best bag of Peas, Field, 50 lbs. ....	0 10 0	0 5 0
235. Best bag of Manna Seed, 100 lbs. ....	1 0 0	0 10 0
236. Best bag of Rice, 100 lbs. ....	0 10 0	0 5 0
237. Best 50 lbs. Dried Onions .. .. .	1 0 0	0 10 0
238. Best bag of Monkey Nuts, shelled, 100 lbs. ....	0 10 0	0 5 0
239. Best bag of Cow Peas, 100 lbs. ....	0 10 0	0 5 0
240. Best 50 lbs. Florida Velvet Beans .. .. .	0 10 0	0 5 0

## SECTION L.—HAY.

Entry fee, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
241. Best 100 lbs. Lucerne Hay .. .. .	£0 10 0	£0 5 0
242. Best Truss of Grass Hay .. .. .	0 10 0	0 5 0
243. Best Truss of Ensilage .. .. .	0 10 0	0 5 0
244. Best 100 lbs. of Manna Hay for feeding purposes	0 10 0	0 5 0
245. Best Bundle of Manna .. . . . Seed 12" in diameter, ripe .. .. .	0 10 0	0 5 0
246. Best Bundle of Cape Oat Hay (untrimmed) ..	0 10 0	0 5 0
247. Best Bundle any other variety Oat Hay (un- trimmed) .. .. .	0 10 0	0 5 0

## SECTION M.—MEAL.

Entry fee, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
248. Best Sack of Mealie Meal .. .. .	£0 10 0	£0 5 0
249. Best Sack of Mealie Meal, "yellow" .. .. .	0 10 0	0 5 0
250. Best Sack of Mealie Meal, "white" .. .. .	0 10 0	0 5 0
251. Best Sack of Meal milled from Rhodesian- grown Wheat .. .. .	0 10 0	0 5 0

## SECTION N.—POTATOES.

Entry fee, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
252. Best bag of Up-to-Date .. .. .	£0 10 0	£0 5 0
253. Best bag of Early Rose .. .. .	0 10 0	0 5 0
254. Best bag of Magnum Bonum .. .. .	0 10 0	0 5 0
255. Best bag of Flour Ball .. .. .	0 10 0	0 5 0
256. Best bag of British Queen .. .. .	0 10 0	0 5 0
257. Best bag of White Elephant .. .. .	0 10 0	0 5 0
258. Best bag of Factors .. .. .	0 10 0	0 5 0
259. Best bag of any other variety, named ..	0 10 0	0 5 0
260. Best 12 Sweet Potatoes .. .. .	0 10 0	0 5 0

## SECTION O.—TOBACCO.

Entry fee, 5s. each Class.

## PLANTERS' SECTION.

Class.	1st prize.	2nd prize.
261. Best 5 lbs. Dark Pipe Leaf .. .. .	£1 0 0	£0 10 0
262. Best 5 lbs. Bright Pipe Leaf .. .. .	3 0 0	1 10 0
263. Best 5 lbs. Cigarette Cutters Bright Leaf ..	Gold Medal	2 10 0
264. Best 5 lbs. Cigar Fillers .. .. .	2 0 0	1 0 0
265. Best 5 lbs. Cigar Wrappers .. .. .	2 0 0	1 0 0
266. Best 5 lbs. Turkish Leaf (Three grades included)	Gold Medal	2 10 0

## MANUFACTURERS' SECTION.

Manufacturers are invited to exhibit.

267. Manufactured Tobacco, Snuff, Cigars, and Cigar- ettes—ample room will be allotted all exhibi- tors .. .. .	Certificate of Merit will be awarded.
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## SECTION P.—AGRICULTURAL AND DAIRY IMPLEMENTS, AND VEHICLES.

Entry fee, 10s. each Class.

Class.
268. Best collection of Agricultural Implements and Machinery—Silver Medal.
269. Best collection of Dairy Utensils—Silver Medal.
270. Best collection of Farm and Garden Seeds—Silver Medal.

NOTE.—Space will be provided on Show Ground for exhibition of Agricultural Implements and Machinery not mentioned above (to be judged, and Diploma given if considered of sufficient merit).

## SECTION Q.—VEGETABLES.

First prize, £1. Second prize, 10s.

Entry fee, 5s. each Class.

Class.

271. Best collection of Vegetables, not more than five of each of the larger varieties, confined to Amateurs.  
 272. Best collection of Vegetables, not more than five of each of the larger varieties, confined to Market Gardeners.

## SECTION R.—FRUITS.

Entry fee, 1s. each Class. In Classes 278 and 283, 1s. must be paid for each variety entered.

Prizes :—Class 1 : 1st prize, £1 ; 2nd prize, 10s. All other Classes : 1st prize, 5s. ; 2nd prize, 2s. 6d.

Class.

273. Best Collection of Citrus Fruits, one of each variety, to be exhibited with name affixed.  
 274. Best Plate of Washington Navel Oranges.  
 275. Best Plate Mediterranean Sweet Oranges.  
 276. Best Plate Old Cape Oranges.  
 277. Best Plate Jaffa Oranges.  
 278. Other named variety Oranges.  
 279. Best Plate Seedling Oranges.  
 280. Best Plate Mandarines, named.  
 281. Best Plate Naartjes, named.  
 282. Best Plate Seedling Naartjes or Mandarines.  
 283. Named varieties Lemons.  
 284. Best Plate Mazoe Lemons.  
 285. Best Plate Pomelos (Grape Fruit or Pompelums).  
 286. Best Plate Citrons.  
 287. Best Plate Shaddocks.  
 288. Best Plate Limes.  
 289. Best Collection of Fruit other than Citrus.  
 290. Any other Fruit in season.

NOTE.—1. A Plate to consist of 7 fruits. 2. The judging of all Citrus fruits will, as far as possible, be on the standard adopted by Californian Societies.

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## Umtali Show.

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The 8th Annual Agricultural Show is to be held under the auspices of the Melsetter Farmers' Association, South Melsetter Farmers' Association, Makoni Farmers' Association, and the Manica Farmers' and Landowners' Association, at the Drill Hall, Umtali, and adjacent Ground, by kind permission, on Friday, June 19th, 1908.

The following is the Prize List :—

## SECTION A.—HORSES.

Entrance, 10s. each Class.

Class.				1st prize.	2nd prize.
1. Hack under Saddle, over 14.2	..	..	..	£2 0 0	£1 0 0
2. Hack under Saddle, under 14.2	..	..	..	2 0 0	1 0 0
3. One-Horse Turn-Out	..	..	..	2 0 0	1 0 0
4. Pair Horse Turn-Out	..	..	..	2 0 0	1 0 0

Class.	1st prize.	2nd prize.
5. Leaper over 2 flights of hurdles, 3 feet .. ..	£2 0 0	£1 0 0
6. Horse under Saddle (mare or gelding), ridden by a lady .. ..	2 0 0	0 10 0
7. Four-in-Hand Turn-Out .. ..	2 0 0	
8. Equipped Troop Horse (open to members of the B.S.A. Police, S.R. Constabulary, and S.R. Volunteers) .. ..	2 0 0	
9. Tandem .. ..	1 0 0	

## SECTION B.—MULES.

Entrance, 10s. each Class.

Class.	1st prize.
1. Pair Turn-Out .. ..	£2 0 0
2. Four-in-Hand Turn-Out .. ..	2 0 0
3. Driving Competition for Cape Cart, 6 Mules or more .. ..	2 0 0
4. Riding Mule .. ..	1 0 0

## SECTION C.—DONKEYS.

Entrance, 5s. each Class.

Class.	1st prize.	2nd prize.
1. Riding Donkey, shown under saddle .. ..	£1 0 0	£0 10 0
2. Turn-Out .. ..	1 0 0	0 10 0

## SECTION D.—CATTLE.

Entrance, 10s. each Class.

Class.	1st prize.	2nd prize.
1. Bull (over 2 years), Dual purpose breed .. ..	£2 0 0	£1 0 0
2. Bull (over 2 years), Dairy breed .. ..	2 0 0	1 0 0
3. Bull (over 2 years), Beef breed .. ..	2 0 0	1 0 0
4. Bull (under 2 years), Dual purpose breed .. ..	2 0 0	1 0 0
5. Bull (under 2 years), Dairy breed .. ..	2 0 0	1 0 0
6. Bull (under 2 years), Beef breed .. ..	2 0 0	1 0 0
7. Cow, Dual purpose breed .. ..	2 0 0	1 0 0
8. Cow, Dairy breed .. ..	2 0 0	1 0 0
9. Cow, Beef breed (pure or graded) .. ..	2 0 0	1 0 0
10. Cow, Beef breed (native) .. ..	2 0 0	1 0 0
11. Milk Cow, any breed, to be milked on Show Ground .. ..	2 0 0	1 0 0
12. 3 Heifers (over 1 year), Dual purpose breed .. ..	2 0 0	1 0 0
13. 3 Heifers (over 1 year), Dairy breed .. ..	2 0 0	1 0 0
14. 3 Heifers (over 1 year), Beef breed .. ..	2 0 0	1 0 0
15. 3 Heifers (under 1 year), Dual purpose breed .. ..	2 0 0	1 0 0
16. 3 Heifers (under 1 year), Dairy Breed .. ..	2 0 0	1 0 0
17. 3 Heifers (under 1 year), Beef breed .. ..	2 0 0	1 0 0
18. Trek Ox .. ..	2 0 0	1 0 0
19. Slaughter Beast .. ..	2 0 0	0 10 0

## CHAMPIONSHIP PRIZES.

Best Horse (for general utility) in Show .. ..	Gold Medal
Best Ram (for mutton) in Show .. ..	Gold Medal
Best Bull in Show .. ..	Gold Medal
Best Cow in Show .. ..	Gold Medal
Best Woolled Ram in Show .. ..	Gold Medal

## SECTION E.—SHEEP.

Judging to be on points mentioned in parentheses.

Entrance, 5s. each Class.

Class.	1st prize.	2nd prize.
1. Pen of Wethers, Rhodesian bred (wool and mutton) .. ..	£1 10 0	£0 10 0
2. Pen of 3 Wethers, fat-tailed or half-bred, Rhodesian bred (mutton) .. ..	1 10 0	0 10 0
3. Woolled Ram .. ..	1 10 0	0 10 0
4. Ram (wool and mutton) .. ..	1 10 0	0 10 0
5. Fat-tailed Ram (mutton) .. ..	1 10 0	0 10 0

Class.	1st prize.	2nd prize.
6. Pen of 3 Woolled Ewes .. .. .	£1 10 0	£0 10 0
7. Pen of 3 Ewes (wool and mutton) ..	1 10 0	0 10 0
8. Pen of 3 Fat-tailed Ewes (mutton) ..	1 10 0	0 10 0
9. Pen of 3 Lambs, Woolled Sheep ..	1 10 0	0 10 0
10. Pen of 3 Lambs (wool and mutton) ..	1 10 0	0 10 0
11. Pen of 3 Lambs, Fat-tailed Sheep ..	1 10 0	0 10 0

NOTE.—In all woolled classes dates of last clippings must be given.

#### SECTION F.—GOATS.

Judging to be on points mentioned in parentheses.

Entrance, 5s. each Class.

Class.	1st prize.	2nd prize.
1. Ram (mutton) .. .. .	£1 10 0	£0 10 0
2. Ram (mohair) .. .. .	1 10 0	0 10 0
3. Pen of 3 Ewes (mutton) .. .. .	1 10 0	0 10 0
4. 3 Ewes (mohair) .. .. .	1 10 0	0 10 0
5. Pen of 3 Kapaters, Rhodesian bred (mutton) ..	1 10 0	0 10 0
6. Pen of 3 Kids .. .. .	1 10 0	0 10 0
7. Milk Goat .. .. .	0 10 0	

#### SECTION G.—PIGS.

Entrance, 5s. each Class.

Class.	1st prize.	2nd prize.
1. Yorkshire Boar .. .. .	£1 10 0	£0 10 0
2. Tamworth Boar .. .. .	1 10 0	0 10 0
3. Berkshire Boar .. .. .	1 10 0	0 10 0
5. Breeding Sow, Pure bred .. .. .	1 10 0	0 10 0
6. Breeding Sow, Cross-bred .. .. .	1 10 0	0 10 0
7. Pen of Pigs (not less than 3) under 9 months ..	1 10 0	0 10 0
8. Slaughter Pig .. .. .	1 10 0	0 10 0
9. Pig, bred locally .. .. .	1 10 0	0 10 0
10. Sow, bred locally .. .. .	1 10 0	0 10 0

#### SECTION H.—DOGS.

Entrance, 5s. each Class.

Class.	1st prize.
1. Pointer Dog .. .. .	£1 0 0
2. Pointer Bitch .. .. .	1 0 0
3. Setter, English, Irish or Gordon, Dog ..	1 0 0
4. Setter, English, Irish or Gordon, Bitch ..	1 0 0
5. Spaniel, any variety, Dog .. .. .	1 0 0
6. Spaniel, any variety, Bitch .. .. .	1 0 0
7. Greyhound, Dog .. .. .	1 0 0
8. Greyhound, Bitch .. .. .	1 0 0
9. Fox Terrier, Dog .. .. .	1 0 0
10. Fox Terrier, Bitch .. .. .	1 0 0
11. Irish Terrier, Dog .. .. .	1 0 0
12. Irish Terrier, Bitch .. .. .	1 0 0
13. Variety class, any Terriers for which there is no class, Dog .. .. .	1 0 0
14. Variety class, any Terriers for which there is no class, Bitch .. .. .	1 0 0
15. Watch Dog (Dog or Bitch) .. .. .	1 0 0

#### SECTION I.—CATS.

Entrance, 2s. 6d. each Class.

Class.	1st prize.
1. Tom Cat, Smooth coated .. .. .	£0 10 0
2. Tabby Cat, Smooth coated .. .. .	0 10 0
3. Tom, Long coated .. .. .	0 10 0
4. Tabby, Long coated .. .. .	0 10 0
5. Kitten, Long coated .. .. .	0 10 0
6. Kitten, Smooth coated .. .. .	0 10 0

## SECTION J.—POULTRY.

Entrance, 3s. each Class.

Class.	1st prize.	2nd prize.
1. Cock, egg producing breed .. .. .	£0 10 0	£0 5 0
2. Hen, egg producing breed .. .. .	0 10 0	0 5 0
3. Cock, table breed .. .. .	0 10 0	0 5 0
4. Hen, table breed .. .. .	0 10 0	0 5 0
5. Cock, general purposes .. .. .	0 10 0	0 5 0
6. Hen, general purposes .. .. .	0 10 0	0 5 0
7. Pen of White Leghorns, cock and 2 hens ..	1 0 0	0 10 0
8. Brown Leghorn, cock or hen .. .. .	0 10 0	0 5 0
9. Buff Leghorn, cock or hen .. .. .	0 10 0	0 5 0
10. Ancona, cock or hen .. .. .	0 10 0	0 5 0
11. Pen of Buff Orpingtons, cock and 2 hens ..	1 0 0	0 10 0
12. Black Opington, cock or hen .. .. .	0 10 0	0 5 0
13. Pen of Minorcas, cock and 2 hens .. ..	1 0 0	0 10 0
14. Brahma, cock or hen .. .. .	0 10 0	0 5 0
15. Spanish, cock or hen .. .. .	0 10 0	0 5 0
16. Andalusian, cock or hen .. .. .	0 10 0	0 5 0
17. Game, cock or hen .. .. .	0 10 0	0 5 0
18. Wyandotte, cock or hen .. .. .	0 10 0	0 5 0
19. Plymouth Rock, cock or hen .. .. .	0 10 0	0 5 0
20. Black Hamburg, cock or hen .. .. .	0 10 0	0 5 0
21. Capon .. .. .	0 10 0	0 5 0
22. Aylesbury, duck or drake .. .. .	0 10 0	0 5 0
23. Pen of Muscovies, 2 ducks and drake ..	1 0 0	0 10 0
24. Duck or Drake, any breed .. .. .	0 10 0	0 5 0
25. Pen of Goose and Gander .. .. .	1 0 0	0 10 0
26. Chinese Goose and Gander .. .. .	1 0 0	0 10 0
27. English Goose and Gander .. .. .	1 0 0	0 10 0
28. Pen of Gobbler and Hen .. .. .	1 0 0	0 10 0
29. Pair of Fancy Pigeons .. .. .	0 10 0	0 5 0
30. Pair of Homing Pigeons .. .. .	0 10 0	0 5 0
31. Pen of 6 Ordinary Pigeons .. .. .	0 10 0	0 5 0

## SECTION K.—RHODESIAN AND MOZAMBIQUE PRODUCE.

Entrance, 2s. 6d. each Class.

Class.	1st prize.	2nd prize.
1. 5 lbs. Pipe Leaf, dark .. .. .	£2 0 0	£1 0 0
2. 5 lbs. Pipe Leaf, light .. .. .	2 0 0	1 0 0
3. 5 lbs. Cigarette Leaf, flue cured .. .. .	2 0 0	1 0 0
4. 5 lbs. Cigarette Leaf, Turkish .. .. .	2 0 0	1 0 0
5. 5 lbs. Cut Pipe Tobacco .. .. .	2 0 0	1 0 0
6. 500 Rhodesian Cigarettes .. .. .	1 0 0	0 10 0
7. Collection of Tobaccos .. .. .	2 0 0	1 0 0
8. Muid of Wheat .. .. .	2 0 0	1 0 0
9. Muid of Buck Wheat .. .. .	1 0 0	0 10 0
10. Muid of Cape Oats .. .. .	1 0 0	0 10 0
11. Muid of Barley .. .. .	1 0 0	0 10 0
12. Bale of Lucerne Hay, not less than 50 lbs. ..	1 0 0	0 10 0
13. 56 lbs. Oat Hay .. .. .	1 0 0	0 10 0
14. Truss of Hay, not less than 50 lbs. ..	1 0 0	
15. Truss of Hay (cultivated lands) not less than 50 lbs. ..	1 0 0	0 10 0
16. Truss of Ensilage, 56 lbs., any age .. ..	1 0 0	0 10 0
17. 50 lbs. Green Barley .. .. .	0 10 0	0 5 0
18. 50 lbs. Green Lucerne .. .. .	0 10 0	0 5 0
19. 50 lbs. Red Clover, green .. .. .	0 10 0	0 5 0
20. 50 lbs. White Clover, green .. .. .	0 10 0	0 5 0
21. Muid White Mealies .. .. .	1 0 0	0 10 0
22. 10 ears Hickory King Mealies .. .. .	0 10 0	0 5 0
23. 10 ears Boone County Mealies .. .. .	0 10 0	0 5 0
24. 10 ears Silver King Mealies .. .. .	0 10 0	0 5 0
25. 10 ears Salisbury White Mealies .. ..	0 10 0	0 5 0
26. 10 ears White Horse Tooth Mealies .. ..	0 10 0	0 5 0

Class.	1st prize.	2nd prize.
27. 10 ears Golden Eagle Mealies .. ..	£0 10 0	£0 5 0
28. 10 ears Golden Leaming Mealies .. ..	0 10 0	0 5 0
29. 10 ears Yellow Dent Mealies .. ..	0 10 0	0 5 0
30. 10 ears Funks' Ninety Days' Mealies .. ..	0 10 0	0 5 0
31. 10 ears Golden Ball Mealies .. ..	0 10 0	0 5 0
32. Muid Yellow Mealies .. ..	1 0 0	0 10 0
33. Bag Boer Meal, sifted .. ..	1 0 0	0 10 0
34. Bag Boer Meal, unsifted .. ..	1 0 0	0 10 0
35. Bag Mealie Meal, machine ground .. ..	0 10 0	0 5 0
36. Bag Rapoko, machine ground .. ..	0 10 0	0 5 0
37. Bag Rapoko (Rekwesa) grown by a farmer .. ..	0 10 0	0 5 0
38. 25 lbs. White Beans .. ..	0 10 0	0 5 0
39. 25 lbs. Beans, any colour .. ..	0 10 0	0 5 0
40. 25 lbs. Dried Peas .. ..	0 10 0	0 5 0
41. 25 lbs. Dried Onions .. ..	1 0 0	0 10 0
42. Sack Up-to-Date Potatoes .. ..	1 0 0	0 10 0
43. Sack Early Rose Potatoes .. ..	1 0 0	0 10 0
44. Sack any other variety Kidney Potatoes, state name .. ..	1 0 0	0 10 0
45. Sack any variety Round Potatoes, state name .. ..	1 0 0	0 10 0
46. Sack Seed Potatoes .. ..	1 0 0	0 10 0
47. Mangel Wurzels, not less than 100 lbs. .. ..	0 10 0	0 5 0
48. Swede Turnips, not less than 100 lbs. .. ..	0 10 0	0 5 0
49. Cattle Carrots, not less than 100 lbs. .. ..	0 10 0	0 5 0
50. Bag of Lime .. ..	1 0 0	0 10 0
51. Bag Sweet Potatoes .. ..	0 10 0	0 5 0
52. 10 lbs. Dried Fruits .. ..	0 10 0	0 5 0
53. 5 lbs. Coffee .. ..	0 10 0	0 5 0
54. 5 lbs. Rubber .. ..	0 10 0	0 5 0
55. Specimens of Cut Timber, sections .. ..	0 10 0	0 5 0
56. 10 lbs. Yams .. ..	0 10 0	0 5 0
57. 10 lbs. Cassava .. ..	0 10 0	0 5 0
58. 10 lbs. Manioc .. ..	0 10 0	0 5 0
59. 50 lbs. Rice .. ..	1 0 0	0 10 0
60. Bag Monkey Nuts, unshelled .. ..	0 10 0	0 5 0

## SUB-SECTION A.

	1st prize.	2nd prize.	3rd prize.
	£ s. d.	s. d.	s. d.
1. Loaf of Home-made White Bread .. ..	1 0 0	15 0	10 0
2. Loaf of Home-made Brown Bread .. ..	1 0 0	15 0	10 0
3. Baker's Brown and White Bread, one loaf of each (weight not to exceed 2 lbs.) .. ..	0 10 0	5 0	
4. Bar of Home-made Soap, 5 lbs. .. ..	0 10 0		
5. 3 Jars of Honey .. ..	0 10 0		
6. Assortment of Jams, limited to 6 kinds .. ..	1 0 0	10 0	5 0
7. Assortment Bottled Fruits, 3 kinds .. ..	1 0 0	10 0	5 0
8. Assortment of Preserved Fruits in Syrup, limited to 6 kinds .. ..	1 0 0	10 0	5 0
9. 4 Jars of Assorted Jellies .. ..	1 0 0	10 0	5 0
10. 3 Jars Marmalade .. ..	1 0 0	10 0	
11. Assortment of Crystallised Fruits, limited to 3 kinds .. ..	1 0 0	10 0	
12. Assortment of Pickles, limited to 3 kinds .. ..	1 0 0	10 0	5 0
13. Assortment of Chutney .. ..	1 0 0	10 0	
14. Dish of Honeycomb .. ..	1 0 0	10 0	
15. 3 Jars Confete .. ..	1 0 0	10 0	
16. Pair of Trussed Fowls .. ..	1 0 0	10 0	
17. 1 lb. Fresh Butter .. ..	0 10 0	5 0	
18. 1 doz. Hen's Eggs .. ..	0 10 0	5 0	
19. 1 doz. Duck's Eggs .. ..	0 10 0	5 0	
20. 1 doz. Muscovy Duck's Eggs .. ..	0 10 0	5 0	
21. Ham .. ..	1 0 0	5 0	
22. Side of Bacon .. ..	1 0 0	10 0	

## SPECIAL PRIZE.

Best Exhibit of Produce (Section K), Silver Cup, value £10 10s.

These prizes will be awarded by points: 1st prize, 5 points; 2nd, 3 points; 3rd and H.C., 1 point.

The Cup must be gained twice in succession by the same Exhibitor before becoming his absolute property.

## SECTION L.—AGRICULTURAL AND DAIRY IMPLEMENTS, ETC.

Entrance, 10s. each Class.

Class.	Prizes.
1. Collection of Agricultural Implements, the <i>bona-fide</i> property of a farmer .. ..	Medal.
2. Collection of Agricultural and Dairy Implements and Machinery (open to storekeepers) ..	Medal.
3. Collection of Farm and Garden Seeds (open to storekeepers) .. .. .	Medal.

## SECTION M.—VEGETABLES.

Entrance, 2s. each Class or £1 per section.

Class.	1st prize.	2nd prize.
1. Best and largest collection of Vegetables .. ..	£1 0 0	£0 10 0
2. 6 Artichokes, globe or flower .. ..	0 10 0	0 5 0
3. Bunch of Asparagus .. ..	0 10 0	0 5 0
4. Dish of Beans, green .. ..	0 10 0	0 5 0
5. 12 Beetroots .. ..	0 10 0	0 5 0
6. Collection of Salad .. ..	0 10 0	0 5 0
7. 3 Cabbages .. ..	0 10 0	0 5 0
8. 3 Cauliflowers .. ..	0 10 0	0 5 0
9. Dish of Brussels Sprouts .. ..	0 10 0	0 5 0
10. 12 Carrots .. ..	0 10 0	0 5 0
11. 12 Turnips .. ..	0 10 0	0 5 0
12. 12 Parsnips .. ..	0 10 0	0 5 0
13. 3 Sticks of Celery .. ..	0 10 0	0 5 0
14. Collection of Herbs .. ..	0 10 0	0 5 0
15. Collection of Kohl Rabbi .. ..	0 10 0	0 5 0
16. 12 Leeks .. ..	0 10 0	0 5 0
17. 12 Onions .. ..	0 10 0	0 5 0
18. Dish of Green Peas .. ..	0 10 0	0 5 0
19. 3 Pumpkins .. ..	0 10 0	0 5 0
20. 3 Marrows .. ..	0 10 0	0 5 0
21. 3 Cucumbers .. ..	0 10 0	0 5 0
22. Dish of Eschalots .. ..	0 10 0	0 5 0
23. Dish of 12 Up-to-Date Potatoes .. ..	0 10 0	0 5 0
24. Dish of 12 Early Rose Potatoes .. ..	0 10 0	0 5 0
25. Dish of 12 Ninety-Fold Potatoes .. ..	0 10 0	0 5 0
26. Dish of any variety of Potatoes .. ..	0 10 0	0 5 0
27. Dish of any other variety of Kidney Potatoes .. ..	0 10 0	0 5 0
28. Dish of Sea Kale .. ..	0 10 0	0 5 0
29. 6 bundles of Spinach .. ..	0 10 0	0 5 0
30. 6 bundles of Radishes .. ..	0 10 0	0 5 0
31. Dish of Chilies .. ..	0 10 0	0 5 0
32. 12 Egg Fruit .. ..	0 10 0	0 5 0
33. 6 Green Mealies .. ..	0 10 0	0 5 0

## SECTION N.—FRUIT.

Entrance, 2s. each Class or £1 per section.

Class.	1st prize.	2nd prize.
1. Collection of Fruit .. ..	£1 0 0	£0 10 0
2. Dish of Cape Gooseberries, not less than 3 lbs. ..	0 10 0	0 5 0
3. Dish of Grenadillas .. ..	0 10 0	0 5 0
4. Bunch of Bananas .. ..	0 10 0	0 5 0
5. Bunch of Plantains .. ..	0 10 0	0 5 0
6. 12 Guavas .. ..	0 10 0	0 5 0
7. Collection of Apples (number of varieties to be stated) .. ..	0 10 0	0 5 0

Class.	1st prize.	2nd prize.
8. 12 Oranges .. .. .	£0 10 0	£0 5 0
9. 12 Apples .. .. .	0 10 0	0 5 0
10. 12 Lemons .. .. .	0 10 0	0 5 0
11. 12 Pomegranates .. .. .	0 10 0	0 5 0
12. 12 Peaches .. .. .	0 10 0	0 5 0
13. 3 Pineapples .. .. .	0 10 0	0 5 0
14. Dish of Strawberries, 3 lbs. .. .. .	0 10 0	0 5 0
15. Dish of 12 Figs .. .. .	0 10 0	0 5 0
16. 3 Paw-paws .. .. .	0 10 0	0 5 0
17. 24 Tree Tomatoes .. .. .	0 10 0	0 5 0
18. Dish of Tomatoes, not less than 12 .. .. .	0 10 0	0 5 0
19. 12 Stalks of Rhubarb .. .. .	0 10 0	0 5 0
20. 12 Plums .. .. .	0 10 0	0 5 0
21. 12 Naartjes .. .. .	0 10 0	0 5 0
22. 24 Limes .. .. .	0 10 0	0 5 0
23. 12 Pears .. .. .	0 10 0	0 5 0
24. 12 Mangoes .. .. .	0 10 0	0 5 0
25. Dish of Loquots .. .. .	0 10 0	0 5 0
26. 6 Shaddocks .. .. .	0 10 0	0 5 0

## SECTION O.—FLOWERS.

Entrance, 2s. each Class.

Class.	1st prize. £ s. d.	2nd prize. £ s. d.	3rd prize. s. d.
1. Collection of Cut Flowers.. .. .	0 10 0	0 7 6	5 0
2. Collection of Wild Flowers, each variety to be separately bunched (open to children under 15) .. .. .	0 10 0	0 7 6	5 0
3. Collection of 12 Ferns growing .. .. .	1 0 0	0 10 0	
4. Table Decoration (only Vases, Flowers and Table Covers) .. .. .	2 0 0	1 0 0	10 0
5. 6 Specimens of Roses (different varieties named) .. .. .	0 10 0	0 5 0	
6. Hand Bouquet .. .. .	1 0 0	0 10 0	5 0
7. Collection of Pot Plants .. .. .	1 0 0	0 10 0	5 0

## SECTION P.—NEEDLEWORK.

All articles shown must be the work of the Exhibitor.

Entrance, 2s. each Class.

Class.	1st prize.	2nd prize.
1. Collection of Fancy Work .. .. .	£1 0 0	£0 10 0
2. Drawn Thread Work .. .. .	1 0 0	0 10 0
3. Lady's Hand-made Blouse .. .. .	1 0 0	0 10 0
4. Piece of Smocking .. .. .	1 0 0	0 10 0
5. Collection of Crochet Wool and Thread .. .. .	1 0 0	0 10 0
6. Collection of Millinery .. .. .	1 0 0	0 10 0
7. Collection of Needlework (for girls under 16) .. .. .	1 0 0	0 10 0

## SECTION Q.—GENERAL.

Entrance, 5s. each Class.

Class.	Prizes.
1. Collection of Mineral Specimens .. .. .	Medal.
2. Collection of Local Views .. .. .	Medal.
3. Entomological Collection .. .. .	Medal.
4. Piece of Furniture made from local timber, named .. .. .	Medal.

For further particulars apply to Horace Freeman,  
Secretary and Treasurer.

## **Short Report on Land Settlement Farms, to 31st December, 1907.**

The Settlement Farms were started at:—

The Premier Estate, Old Umtali,  
The Central Farm, Marandellas, and  
The Sinoia Farm, Lomagundi.

This latter farm is at present under lease to a farmer Settler, and is not dealt with in this Report, although arrangements are being made with him to take one or two "Learners."

Of the Settlers who have served a term at one or other of the above Settlement Farms, six have already taken up farms and two other are in negotiations for farms. There is at present accommodation for a few more approved Settlers.

At the Premier Estate a small dairy has been erected, which is at present providing about 80 to 100 lbs. of butter per week of excellent quality, and so far climatic conditions have not proved insuperable. The Dairy is under the Management of Mr. J. Lamport Stokes, the late assistant Manager of the Tweespruit Creamery, O.R.C. Arrangements are being made for cheese making, and as soon as more farms are taken up in the District, the Dairy will be run on Co-operative lines and enlarged as necessary.

Some pedigree pigs of the "large Black" breed have been imported, and will form the nucleus of a herd.

The cattle comprise an excellent herd of cross bred Colonial Cattle; Shorthorn, and Africander-Friesland Bulls are being used.

Various experiments are being made with artificial manures. The Analyst attached to the Department of Agriculture, after making careful analyses of various samples of soil, has given some valuable information as to the most economical use of the fertilisers compatible with the best results, which is being acted upon. The results of these experiments will be published in the "Rhodesian Agricultural Journal."

The crops principally experimented upon are Mealies and Tobacco. The Department has engaged the services of a man who has had experience with Bright Virginian

Leaf Tobacco, and with one of the Greeks recently imported by the Department of Agriculture, it is hoped that from 30 to 40 acres may be planted with Tobacco. One flue-curing barn has been erected, and if the crop warrants it another will be built.

Some hundreds of Citrus trees have been planted, and are making a fair growth.

An experimental plot of Paspalum grass showed such exceptional growth during the dry season without irrigation that a paddock of ten acres has been laid down with this grass.

A large acreage of Oats was sown for forage, and well harvested.

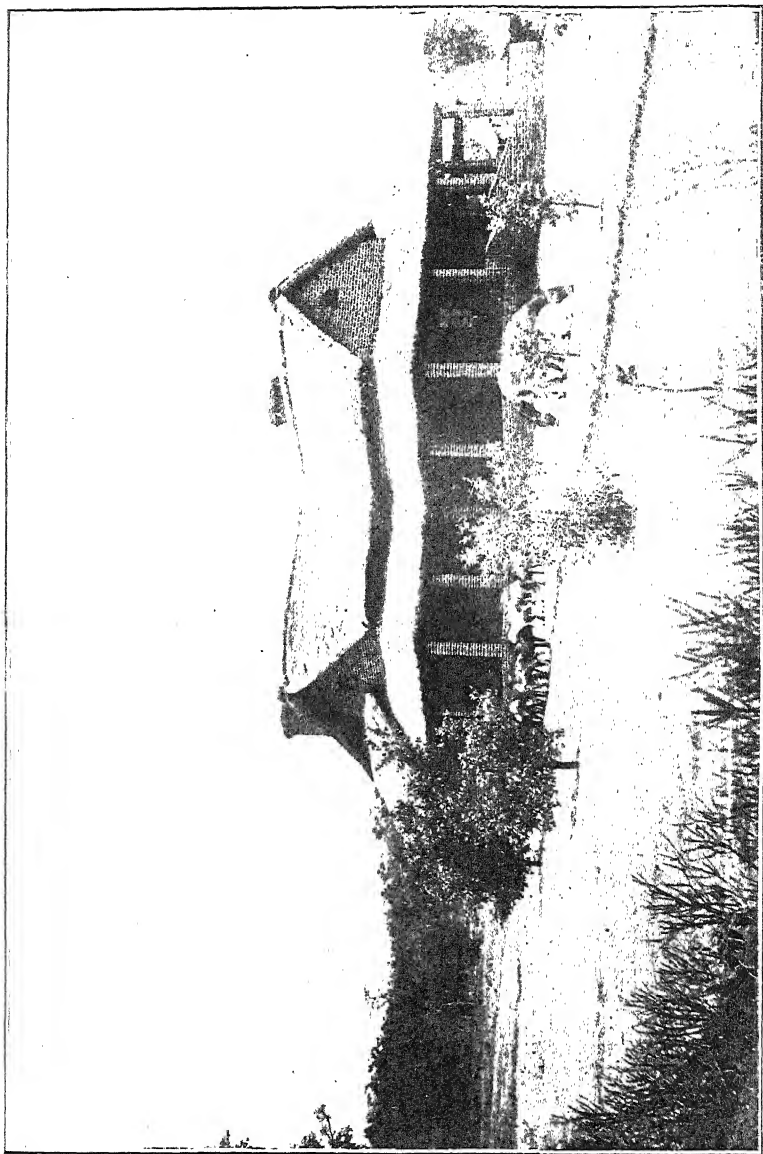
Lucerne was also planted in beds with satisfactory results, and about ten acres is being put down in two different fields.

The Central Farm is in the Marandellas District about 20 miles South of Marandellas Station, and is connected with it by a good road. This farm is run principally as a stock farm, and considerable attention is being paid to raising distinct breeds both for improving the Flocks and Herds of the Central Farm, and for sale to Settlers who have taken up farms adjacent to the Central Farm. Butter making is in progress, and it is proposed to start a central Dairy on the lines of the one at the Premier Estate, as soon as the milk production of the herds warrants it. This also it is proposed to run on Co-operative lines.

The breed of pig at the Central Farm is the Berkshire, and particular attention will be paid to breeding and feeding Bacon pigs, which will be sent to the Rhodesia Packing Co.'s Bacon Factory, which it is hoped will be soon started in Salisbury. The pig industry should prove a very profitable one.

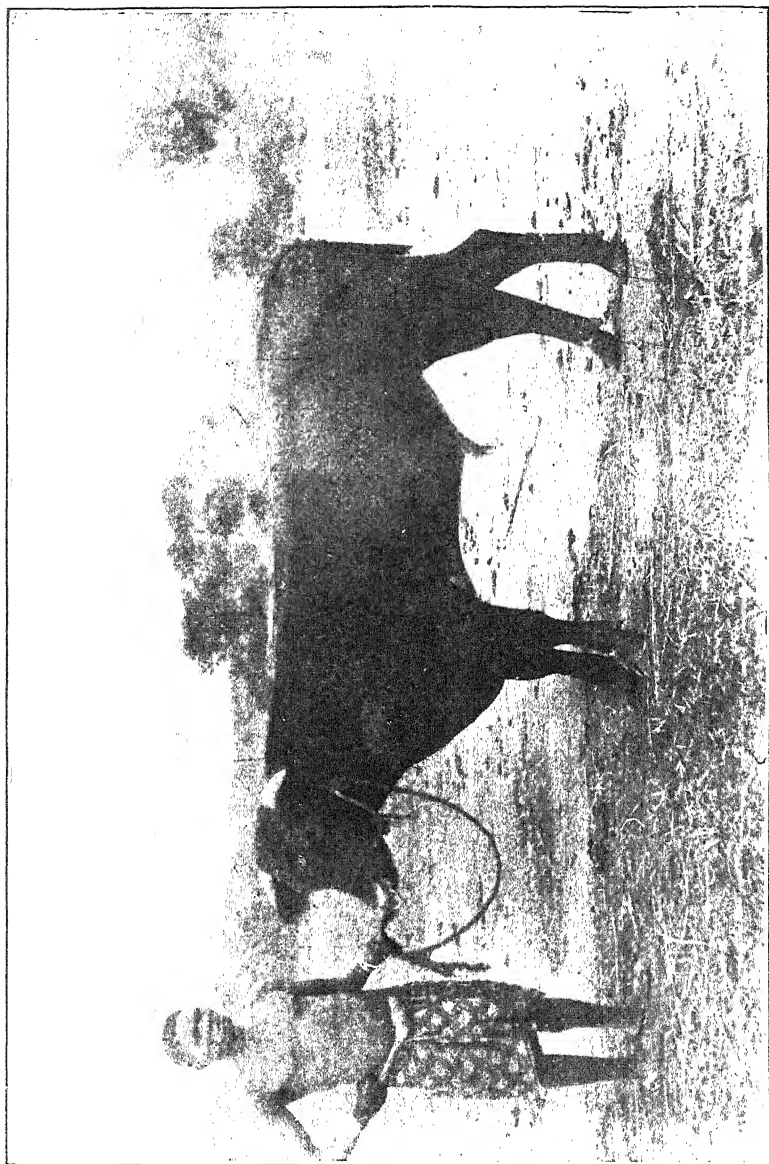
An excellent herd of pure bred Devons has been imported, and, with the exception of one which died after inoculation from red water, are doing well. In addition to a herd of Angoni and Native cattle about 100 cross bred heifers have been sent from the Premier Estate together with Shorthorn Bulls, which should improve the herd.

The Tobacco already planted at the Central Farm shows exceptional growth, and there is every reason to think that the soil is particularly suitable for tobacco, though on the more sandy parts of the farm the assistance



Mr. J. C. Innes' House, Fort Jameson, N.E. Rhodesia.





Imported Shorthorn Bull at 18 months, owned by J. C. Innes, Esq., Fort Jameson, N.E. Rhodesia,



of commercial fertilisers will be necessary. With the assistance of a Greek tobacco grower a considerable acreage it is hoped will be planted.

About a thousand Citrus trees have recently been planted, but no information can yet be given as to the adaptability of the soil for Citrus culture, though selected parts have been pronounced favourable by an experienced grower.

The small stock on the Central Farm consists of Persian Merino ewes with pure Persian Rams, and Boer Goat Ewes with a Swiss Billy. These are doing well.

Substantial farm buildings are being erected, plans of which can be seen in the Journal for December, 1907, Vol. 5, No. 2.

On one of the farms taken up brick houses have been erected.

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## Land for Settlers.

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Land in Southern Rhodesia can be obtained from the British South Africa Company under Permit of Occupation, subject to occupation and other conditions, with option of purchase by instalments.

Applicants must be able to satisfy the Company that they possess sufficient capital or farming assets in the way of implements, stock, etc., available for use in this country, if they wish to take up a full-sized farm, and a proportionate amount for smaller areas—£300 to £500 is required, or assets to that value.

Farms in Mashonaland are usually 1,500 morgen, and in Matabeleland 3,000 morgen.

### TERMS ON WHICH LAND CAN BE OBTAINED.

The terms upon which land can be obtained, as published in previous leaflets and handbooks, have been revised, in order to give greater facilities to the settler. The general conditions are as follows:—

1. A settler may become the owner of a farm—(a) on payment of purchase price, subject to terms of occupation; or (b) after five years' occupation, the price being

fixed at the commencement of the tenancy. During this period he will pay an annual rent calculated at five per cent. on the purchase price, but no payment will be demanded until the end of the second year's occupation of the farm, the first year's rent being spread *pro rata* over the second and subsequent years of the tenancy.

2. The tenant must actually and continuously occupy his farm, either personally or by a European substitute to be approved by the Company, and must carry out *bonâ fide* farming operations, by cultivation or with stock, as follows:—

- (a) by the cultivation of two morgen of land for every one hundred (100) morgen of the said farm; or
- (b) by the maintenance of two head of cattle or ten head of small stock, comprising sheep, goats and pigs for every one hundred (100) morgen of the said farm; or
- (c) by the performance of a proportionate part of sub-sections (a) and (b) above.

3. A rebate of five per cent. upon the purchase price of farms will be granted where improvements have been carried out to the satisfaction of the Company in the following directions, viz.:—

- (a) for every five miles of permanent fencing (iron or iron and wire) erected;
- (b) for every 10,000 forest trees, of approved varieties, not less than ten feet high;
- (c) for every 100 morgen of land which has been under general cultivation for not less than three years.

The rebate made, however, will not exceed twenty per cent. in all.

4. At the end of the five years of occupation, provided the tenant has carried out the general conditions of his Permit of Occupation, he may purchase the farm, paying the price fixed at the commencement of his tenancy: if he wishes it, the payment will be extended over a further five years, and be payable in ten half-yearly instalments, plus 5 per cent. interest on the unpaid balance.

5. If the tenant at the end of the five years' tenancy does not wish to purchase the farm either outright, or in instalments as above, he may continue his tenancy for a further five years, subject to the same covenants, at an increased rental equal to  $7\frac{1}{2}$  per cent. on the purchase price. At the end of the second period of five years, the option to purchase under the original agreement will cease, if not exercised.

6. At any time during the second period of five years, whether the tenant is paying instalments of the purchase price or continuing his tenancy, he may pay off the whole amount of the purchase price and become the owner of the farm. Title will only be granted when the whole purchase money has been paid.

7. Title may be obtained before the expiration of the five years' occupation period, on payment of the purchase price, whenever, in the opinion of the Company, a settler has expended a sufficient sum in permanent buildings or works on a farm to ensure its future occupation.

8. After obtaining title, the purchaser will have to pay Quitrent, which is an annual charge of 1s. per 25 morgen\* or part thereof. Thus, assuming a farm to be exactly 1,500 morgen in extent, the owner must pay an annual sum of £3 7s. 6d., which includes Stamp Duty on the quitrent receipt.

9. Should the settler not avail himself of the option of purchasing, and surrender the farm, compensation will be paid by the British South Africa Company at the termination of the original period of five years, or on the subsequent surrender of the farm, to the amount of 75 per cent. of the then value of any permanent buildings and works on the farm, which have been erected or carried out with the prior written sanction of the Company. The amount of compensation to be paid shall be calculated only upon such expenditure as the Company may have previously authorised in such written sanction.

10. The price of land varies according to its locality, *e.g.*, proximity to railways, towns, mines and other markets, and to its general characteristics. At present the price of unimproved farms is from about 1s. 6d. to 8s. a morgen, the former being the minimum for stock farms. In some special cases where areas of irrigable land are

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\* A morgen is approximately equal to  $2\frac{1}{4}$  English acres.

suitable for dividing into small holdings for more extensive cultivation, the price is naturally higher. Each farm is valued prior to occupation, and the price, which includes cost of survey, is fixed after a careful inspection of the quality of the land, etc.

11. Applications for land in Southern Rhodesia should be addressed to the Secretary, Estates Office, Salisbury, Rhodesia. Such applications, which must be in writing, will be dealt with in the order in which they are received.

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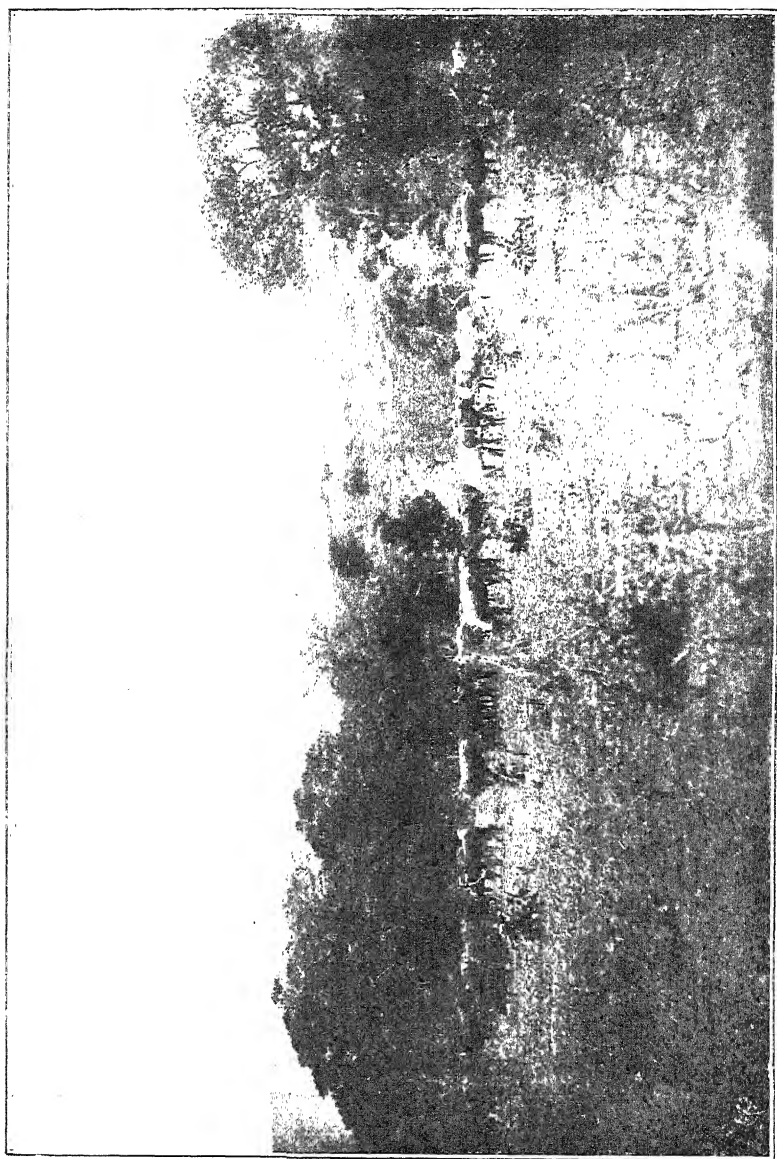
### **Land Settlement Areas and Central Farms.**

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1. Farming, like any other business, requires learning, and even if the settler has had experience of farming in another country, there is much knowledge which he would find necessary to acquire on taking up a farm in Rhodesia, unless his experience has been gleaned in some other part of South Africa, though even in this case he will find conditions somewhat different.

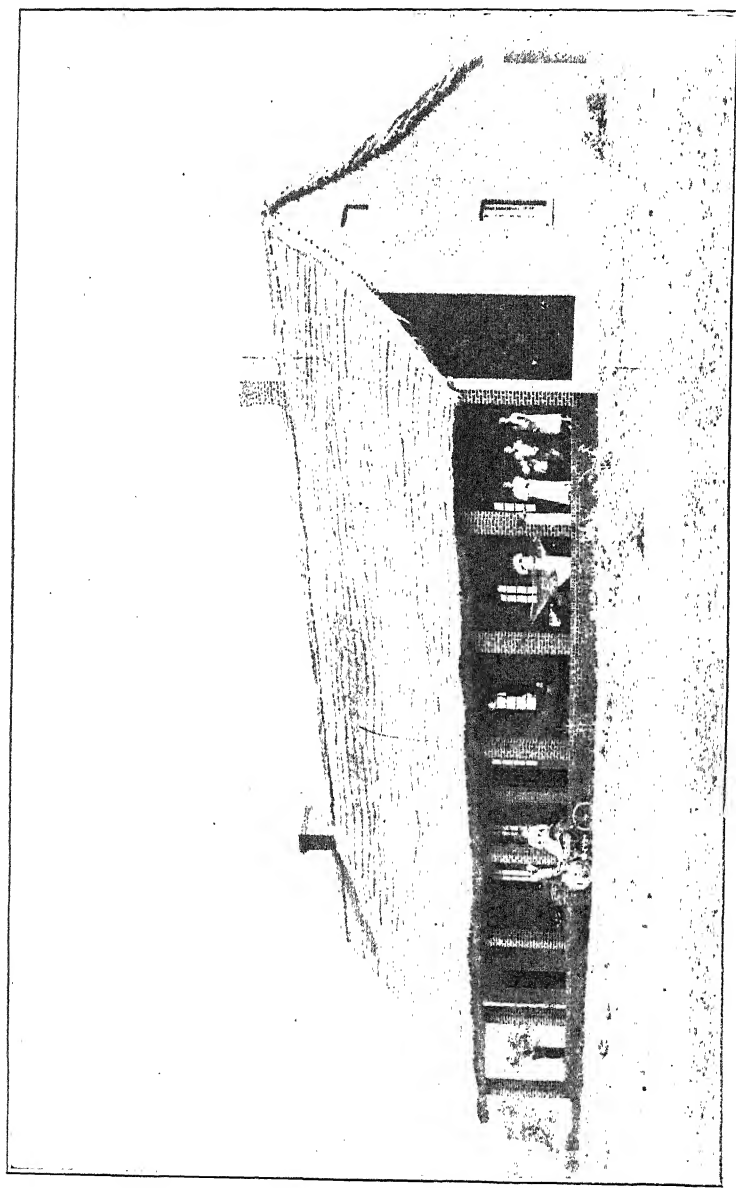
2. Unless a man is prepared to buy this knowledge dearly, it is advised that he should work for a year, or longer if necessary, with a Rhodesian farmer or on a settlement where he may acquire experience.

3. With the object of assisting newcomers in this way, the Company has established Central Farms at Marandellas, and at the Premier Estate near Umtali, where approved settlers will be taken for a year or so to learn local conditions of farming before taking up farms of their own. Only a limited number of men can be taken upon these Central Farms, but each year as settlers gradually move on to their own farms a further number will be provided for. In addition to working on the Central Farms settlers will be employed in the development of surrounding farms, particularly on those which they will eventually take up. It is further contemplated that after men are established on their farms they will be glad to take others to assist them and learn from them, and in this way it is hoped that the settlement of the land will rapidly develop itself on the snowball principle. A limited number of these men will be taken on the Central Farms, and as soon



Angoni Cattle out Mr. Innes' Farm, Fort Jameson, N.E. Rhodesia.





The Homestead, Lutemhlwe Farm, Fort Jameson, N.E. Rhodesia.



as they prove worth it, will receive board allowance and lodging free, in return for their work; settlers to provide their own blankets and linen. Those who are taken on over and above the number that can be usefully employed, must pay for their board, though they will be given their lodging free. As the former are gradually placed on farms, the latter, as soon as they prove capable, may take their places.

4. A man going out to a Central Farm has, firstly, a place to go to on his arrival in the country where he can acquire knowledge of Rhodesian farming conditions at a minimum of expense to himself, and, secondly, he is able to take up a farm on a "Settlement" as one of a community, instead of being isolated, though he can take up a farm elsewhere if he prefers to do so. If, however, he takes up a farm on a "Settlement" he can obtain live stock and the use of stud animals from the Central Farm, and he will also share the benefits of co-operation which it is intended to promote in as many branches as possible.

Applications for land in Southern Rhodesia should be addressed to the Secretary, Estates Office, Salisbury, Rhodesia. Such applications, which must be in writing, will be dealt with in the order in which they are received.

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## Epitome of Cattle Inspectors' Returns.

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JANUARY, 1908.

SALISBURY.

### *Redwater.*

A number of two tooth animals having arrived from non-Redwater areas of Cape Colony were inoculated against this disease. Blood was selected from young healthy calves, born and bred on farms to which the imported cattle were removed. Young humped cattle about three months old, were selected on account of the fact that ticks are so seldom found on these animals. All the inoculated animals reacted during the second week after inoculation. One heifer of weak constitution succumbed.

From the above result it may be deduced that "Redwater" is endemic throughout this district, and at a very early age calves born in the district harbour the parasite (*P. bigeminum*) in their blood.

During the past months not a few letters have been received from cattle owners in the district, describing symptoms of a sickness, which would lead one to think that their calves were suffering from acute "Redwater." It may be that owing to weather conditions being favourable to the hatching of ticks, young animals at this time of the year are submitted to a more sudden and gross infection, than at other times of the year, when ticks are less prevalent.

Careful microscopic examination of the blood of calves suffering from the "Specific Lung Disease" has demonstrated the fact that the blood is, in the majority of cases, invaded by the *P. bigeminum* in great numbers, and one is inclined to think that the weakness brought about by the piroplasmosis greatly predisposes the calves to the lung disease, and to the digestive troubles which frequently accompany it.

#### *Specific Lung Disease of Calves.*

This disease exists at two dairy farms. One dairyman having sent in-calf cows and also a number of healthy and apparently recovered calves to his farm about nine miles from town, has conveyed the disease to the farm; and calves recently born there have developed the disease. It would be interesting to discover the exact manner in which the infection was carried, in order that the spread of the disease to other farms may be arrested.

#### *Biliary Fever of Donkeys.*

A number of donkeys imported from the Karroo have died since the commencement of the rains. The symptoms have been those of pernicious anæmia; the visible mucous membranes have been blanched, the coat dry and the skin scalded and scurfy. The animals have become very emaciated and weak. Microscopic examination of the blood has revealed intracorpuseular parasites, sometimes as many as five in a single cell. From the frequent cruciform arrangement of the parasites one is inclined to diagnose them as the "*piro-plasma equi*." Post-mortem lesions have pointed to biliary fever.

## BULAWAYO.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: Two deaths occurred at Mzingwani at the beginning of the month.

### *Glanders.*

The following animals were tested with Mallein, and found healthy: Horses, 8; Mules, 51; Donkeys, 17; total, 76.

## GWELO.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths.

## UMTALI.

### *Scab.*

Two fresh outbreaks, making twelve flocks under licence.

### *Senecio Poisoning.*

Experiments, both feeding and injection of blood taken from sick animals, are in progress. Twenty deaths have now taken place in the herd affected. The variety of Senecio which is suspected has been identified by the Government Veterinary Surgeon as the "Senecio Lati-folius." Specimens have gone forward to a botanist for corroboration. The variety is one of those which proved so deadly in the so-called Molteno Disease.

### *Horse Sickness.*

Three cases. One death.

## VICTORIA.

### *African Coast Fever.*

Fresh Outbreaks: None.

Existing Outbreaks: No deaths. All cattle remain healthy.

## ENKELDOORN.

### *Scab.*

Five flocks remain under licence.

### *Horse Sickness.*

Three horses and a mule died.

## MELSETTER.

### *African Coast Fever.*

This district may now be considered free of Coast Fever, no cases having occurred for over twelve months.

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FEBRUARY, 1908.

### *African Coast Fever.*

No cases. Three infected areas, on which there are no susceptible cattle at large, still exist.

### *Glanders.*

The following animals tested with Mallein and found healthy:—Horses, 13; Mules, 6; Donkeys, 65; total, 84.

### *Scab.*

Twelve flocks under licence.

### *Horse Sickness.*

Twelve deaths reported.

J. M. SINCLAIR,

Chief Veterinary Surgeon.

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## Reviews.

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### BEE CULTURE.

Anyone interested in Bee Culture cannot do better than study the "A.B.C. and X.Y.Z. of Bee Culture," published by The A. I. Root Co., Medina, Ohio.

This book, as its title suggests, furnishes in detail the whole art of bee keeping. With such a book on his shelf no amateur should be at a loss for instructions to manipulate his bees by the best and most up-to-date methods,

and the veteran at the business will undoubtedly obtain many useful hints and suggestions among its 500 odd pages.

The book is freely illustrated, the diagrams being clear and the descriptions of same full but simple and easily followed.

The pleasure to be obtained from bee keeping as a hobby is by no means lessened by the profit which can also be made from it, with the assistance of this book. No one who is prepared to give these busy and interesting little workers the attention they require should find it difficult to make them pay their way, by supplying the household with a delicious and wholesome sweet, and having enough honey over to add a respectable amount to his or her pocket money.

Not only is the care of the bees, and the taking and storing of honey considered, but everything connected with the packing, mailing, and selling of it is fully described.

The book also deals with the scientific side of the subject in an interesting and popular style. Under the heading of "Pollen" a very good description is given, showing how the legs of bees are constructed, with the object of facilitating the collection and storage of this necessary food.

All the latest and most up-to-date appliances for use in bee keeping are described, and their merits and drawbacks impartially discussed.

A long list is given of the fruit blossoms and flowers which secrete honey, and are visited by the bees, but as these are taken from the American flora, they are in some cases not applicable to this country.

All those about to take up bee culture, and those already in the business should read this book.

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### MATOPO AND INYANGA ESTATES.

The first report of work and experiments carried out on the Matopo and Inyanga Estates is welcomed as a promise of greater things to follow. These two estates should undoubtedly be made of value to farmers from an educational standpoint, and seeing that they are both well

endowed, the scope for conducting experiments on them is far beyond that of the average farmer.

In this country it seems difficult to obtain the results of practical experience to publish for the benefit of all, but this report overcomes this difficulty to a certain extent.

Referring to the list of crops grown on the Matopo Estate, giving the average yield per acre, it is not stated whether this is the average for one or for a series of years; naturally the longer the period to which the averages refer, the more reliable the information; on most experimental stations, and such like institutions, it is not usual to publish the results of experiments with crops for a less period than seven years, this time being considered the shortest in which reliable data may be obtained.

We notice that a difference of opinion is expressed with regard to the advisability of sowing a nurse crop with lucerne. Mr. Wienholt has sent a letter to the Journal on this subject, and it will be interesting if farmers will send in a report stating by which method of sowing this valuable forage crop they have obtained the best stand.

The results of the various crosses tried with the cattle on the Matopo Estate will be of great interest when a fair comparison of the progeny can be made.

The short paragraph on Ostriches is most encouraging, and should induce farmers to turn their attention to this branch of farming more seriously.

As the Inyanga Estate is principally devoted to stock farming and fruit culture it is the part of the report dealing with cattle, sheep, and fruit that naturally receives most attention.

The advantages of fencing are clearly pointed out; stock owners undoubtedly realise these advantages, but are in most cases deterred from fencing on account of the heavy initial outlay.

The intention to start the breeding of pure bred stock is perhaps the most important announcement in this report. There is undoubtedly a crying need for stud farms in Rhodesia, and such an estate as this is the proper place for the purpose.

The report on the Sheep at Inyanga cannot be termed exactly encouraging, and the warning to those with no

previous experience in this branch of farming should on this account be specially noticed.

The notes on the style of fences erected, and their suitability to the class of stock kept are useful and noteworthy, and the cost of same provides valuable data which should be carefully studied.

The report on the fruit orchards is disappointing. One knows that excellent fruit is grown at Inyanga, and in such a report one would naturally expect to glean some valuable information, such as the best varieties to plant, which class of fruit is most valuable commercially, and some hints on packing for market, etc. Instead of which no single variety is named, and no mention even made of the average yield to expect from the different classes of fruit grown.

Under the heading of "Forestry in Rhodesia" much valuable information is contained, which should be carefully studied by all who intend improving their property by planting trees. The fact that trees of the Pine family are particularly recommended should encourage more extensive planting of certain varieties of this most useful tree.

The list of 129 trees and shrubs growing at the Matopo Park should be consulted before definite arrangements are made for raising trees for next season's and future plantings.

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## **SOUTH AFRICAN STUD BOOK.**

**A** RECORD of all classes of Stock, the object being to encourage the breeding of Thoroughbred Stock and to maintain the purity of breeds, thus enhancing their value to the individual owner and to the country generally.

Applications for Membership and entries of Stock should be addressed :

For Cape Colony to—

J. PIKE, P.O. BOX 703, CAPE TOWN.

For Transvaal to—

F. T. NICHOLSON, P.O. BOX 134, PRETORIA.

For Orange River Colony—

E. J. MACMILLAN, GOVERNMENT BUILDINGS,  
BLOEMFONTEIN.

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J. PIKE,

Secretary South African

Stud Book Association.

## Government Notices.

No. 42 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 28th February, 1907.

### RABIES.

I **N**DER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904," may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcasses of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

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No. 228 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after the 1st November, 1907, the following regulation shall have full force and effect in addition and supplementary to the Regulations proclaimed by me under Government Notice No. 42 of 28th February, 1907.

14. Notwithstanding the provisions of Section 7, the following classes of dogs shall be allowed to go unmuzzled subject to the conditions respectively set forth in each class.
  - a. Pointers, Setters, Spaniels, and all such sporting dogs, when being *bona fide* used and at work before the gun, and under the ordinary supervision and control of persons in charge of them, carrying guns for the shooting of game.
  - b. Packs of Foxhounds, Harriers or Beagles, duly registered as such before the Resident Magistrate of the District in which their owner or owners reside, when under the ordinary supervision and control of not less than two persons engaged in the chase.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator.

F. J. NEWTON,

Treasurer.

No. 237 of 1906.

## GAME LAW CONSOLIDATION ORDINANCE, 1906 : CLOSE SEASON, &amp;c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof :—

## CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.

2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.

3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned :—

(a) Oribi, within the magisterial district of Charter.

(b) Grysbok, within the magisterial district of Bulawayo.

(c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.

(d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melsetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C," except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary :—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows :—

On the North and West by the River Zambesi, starting at the point where the Lozenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanyati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaoosa Rivers to the headwaters of the Lozenzi River and thence along the course of the Lozenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaoosa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

## SCHEDULE

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umzwezwe Bridge, thence along the Umzwezwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 91 of 1907.

## "GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds:—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glareola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

No. 41 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 20th February, 1908.

## GAME LAW CONSOLIDATION ORDINANCE, 1906.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following regulations shall, from date of publication hereof, have full force and effect:—

1. To enable holders of a game licence to hunt game during the close season, the operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 30th April, 1909, on private land within the Magisterial District of Melssetter, subject to the provisions of Section 16 of the Ordinance.
2. Up to the 30th April, 1910, all game within the limits of the Commonage or Townlands of Melssetter shall be strictly protected, and shall not be hunted or destroyed.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 188 of 1906.

26th July, 1906.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices-Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.
2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except—

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions:

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.
- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (e) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
- (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.
- (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.

5. The movement of working cattle may be permitted under the following conditions only:—

- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it

conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.

- (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided:—

- (a) That such movement shall be to nearest available pasturage by the most suitable route.  
 (b) That written consent be obtained in terms of Section 4 (b) hereof.  
 (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.

7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.

8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.

9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.

10. All veld-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days: provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank:—

For cattle (over six months)	..	..	..	3d. per head.
For horses and mules	..	..	..	3d. „
For calves (six months and under)	..	..	..	2d. „
For small stock	..	..	..	½d. „

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umvutcha, Reigate, Upper Nondwene, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umvutcha.

No. 216 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 10th October, 1907.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw Sub-section (b), Section 5 of Government Notice No. 188 of 1906, and declare the following to be of full force and effect in lieu thereof:—

Within the said area from private farms and trading stations to any centre of consumption, or to a railway station or siding, or to and from any other farm, or from a mine to a railway station or siding for the purpose of transporting fuel or mining timber, under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed; provided that no permit shall be issued until the person applying for the same shall produce the written consent of the owners, occupiers, or managers of occupied lands proposed to be traversed, and, in the case of native reserves, of the Native Commissioners, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner, and to the satisfaction of the officer issuing the permit; provided further that, in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 217 of 1907.

Department of Agriculture,  
 Administrator's Office,  
 Salisbury, 10th October, 1907.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw as from the 1st October, 1907, the regulations promulgated by Government Notices No. 189 of 1906 and No. 185 of 1907, and declare that the following shall be of full force and effect in lieu thereof from that date within the province of Mashonaland and the fiscal division of Gwelo, as defined by the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which areas are hereby declared to be areas infected with a destructive disease :—

1. The movement of all cattle within the said area is prohibited save and except :—

- (a) On permission granted by an officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within any area of land enclosed by a substantial fence.
- (d) Within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp.
- (e) Within a radius of four miles of any native kraal situate within the boundaries of any native location or reserve, the site of such kraal shall be deemed to be the place where it is situated at the date of publication hereof, and as is further provided.

2. The movement of cattle for slaughter purposes shall be permitted under the written authority of an officer thereto duly authorised, subject to the following terms and conditions :—

- (a) That such cattle are moved by the most suitable route to the centre of consumption. All cattle travelling by road to be under the personal supervision of a responsible white man, or native approved of by the Cattle Inspector.
- (b) That before cattle may enter from a native district not included in any particular group of districts as defined in Section 6 (b) the written permission of owners, occupiers, or managers of all occupied land, and, in the case of native reserves, of the Native Commissioner of the district over which such cattle shall pass to the nearest station, siding, or centre of consumption is obtained; provided that in the event of such owners, occupiers, managers, or Native Commissioners refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall, on arrival at the centre of consumption, subject to the terms of clause (d) hereof, be immediately taken to the prescribed quarantine area, and there be quarantined and confined, and branded with the letters "V.D." on the near side of the neck under the supervision of a duly authorised officer.
- (d) That all cattle brought into any centre of consumption shall be disinfected by dipping or spraying at the public dipping station before being taken to the quarantine area.
- (e) That all cattle admitted to the quarantine area shall be slaughtered within 21 days of their admission, and only be permitted to leave the area for the purpose of being driven to the abattoir for slaughter. All such cattle shall, after admission to the said area, be considered as likely to be infected with disease, and, if found wandering outside the said area or in possession of any person, may be destroyed under an order of the Chief Inspector or Controller of Stock.

- (f) That intermediate depots, or concentration camps, for slaughter stock may be allowed at centres approved of by the Chief Inspector of Cattle, provided that no such camp shall be situated within less than a radius of five miles of any commonage, town lands, or grazing ground common to any mining camp, railway station or siding.

3. The movement of cattle required for *bona fide* mining, farming, breeding and dairying purposes and for private milk supplies may be permitted on the written authority of a duly authorised officer, subject to the following terms and conditions :—

- (a) That such movement shall take place subject to the conditions set forth in Section 2 (a) and (b).
- (b) That whenever such cattle shall at any place along the route have passed within a radius of less than five miles of an infected area, the cattle shall upon arrival at their destination be effectually isolated from all other cattle on the same land for a period of four weeks.
- (c) That whenever the cattle being removed shall at any portion of the route have passed within native districts where infected areas exist, the consent in writing to such movement be obtained from all owners of cattle on farms adjoining that to which movement takes place ; and in the case of native reserves of the Native Commissioners of the districts ; provided that should such consent be unreasonably withheld by any of the aforesaid persons the Controller of Stock may direct the issue of a permit.
- (d) That such cattle required for breeding and dairying purposes, or for private milk supplies, when moved to within the boundaries of the various commonages, town lands, or of grazing ground common to any mining camp or other centre where cases of African Coast Fever have occurred within 15 months, shall be confined in some enclosed place approved of by the local Cattle Inspector, and, if a case of African Coast Fever occur in such enclosure, shall not be liberated therefrom except in terms of Section 5 hereof, until 15 months after the last occurrence of African Coast Fever within the enclosure in which they are kept, nor shall they be allowed, after liberation, to run upon any of the land specified herein, unless such land has been free from African Coast Fever for a period of 15 months.
- (e) All cattle introduced in terms of the preceding sub-section (d) shall, on arrival, be taken direct to the Government dipping station and there be dipped or sprayed.
- (f) All cattle confined in terms of clause (d), and all calves born within the said enclosures, shall be sprayed every 14 days, as may be directed by the Cattle Inspector.
- (g) No cattle shall be moved from one native district to another unless with the permission of the local Veterinary Officer and the Cattle Inspectors of the districts to and from which such movement takes place.

4. All calves having less than two permanent teeth running within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp or other centres where cases of African Coast Fever have occurred within 15 months of the date of these Regulations, or born thereon after such date, shall be removed to some enclosed place approved of by the local Cattle Inspector, and shall not be liberated or allowed to run at large on such commonage, town lands or common grazing ground until 15 months after the occurrence of the last case of African Coast Fever within the enclosure in which they are confined, or upon such commonage, town lands or common grazing ground.

- (a) No calves shall be permitted to accompany working cattle travelling along the roads mentioned in Section 7, sub-section (c), and all calves born of such working cattle whilst travelling shall not be removed from the place where born.

5. For the purpose of cleansing an area of disease the Controller of Stock may, under the authority of the Administrator and on the advice of the Chief Inspector of Cattle, subject to such conditions as may be stipulated, permit the removal of calves and other cattle to an adjacent clean area.

6. The movement of working cattle other than those specified in Section 7 hereof may be permitted within the following areas and on the terms and conditions hereinafter set forth :—

(a) Within a maximum radius of 15 miles of any working mine, or mine in course of development, for the purposes of such mine, provided that :—

- (1) Such cattle shall only be moved under permission of a duly authorised Officer, and shall be dipped every 14 days where a dipping tank is available within such area, or, in the absence of a dipping tank, be thoroughly sprayed with an insecticide.
- (2) Such permission shall not be granted where it conflicts with any other section of these regulations, or if such movement is considered to be dangerous to other cattle within the 15 mile radius.

(b) Within the boundaries of the Gwelo and Lomagundi Native Districts, and within and between the boundaries of the following adjoining Native Districts : (1) Salisbury, North and South Mazoe; (2) Hartley, Charter and Chilimanzi; (3) M'tokos, M'frewas, Marandellas and Makoni; (4) Inyanga, Makoni and Umtali (as defined by Government Notice No. 13 of 1899); (5) Along the road West of the Sabi River from Odzi Bridge to Makondo Copper Mine, subject to the following conditions :

- (1) That the movement will be permitted for such period as the Controller of Stock may in his discretion, and on the advice of the Chief Inspector of Cattle, deem expedient, provided that such permission may at any time be withheld or withdrawn without notice.
- (2) That all applications for removal shall be approved of by the Cattle Inspectors of the districts through which the cattle pass.
- (3) Provided that in the event of such Cattle Inspectors refusing to grant permits for the removal of cattle, the Chief Inspector may, on the advice of the local Veterinary Officer, direct the issue, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (4) That all such cattle are dipped every 14 days where a tank is available, or, in the absence of a tank, are thoroughly disinfected by spraying.

7. The movement of "salted" or immune working cattle shall be permitted on the following terms and conditions :—

- (a) That such cattle have been registered and branded under the supervision of the Cattle Inspector with the brand "T.O." on near shoulder and the registration number on near horn, in terms of Section 7, clauses (a) and (b) of Government Notice No. 109 of 1905.
- (b) That the movement of such cattle shall only take place under the written permit of a duly authorised officer and subject to the conditions that they are disinfected by dipping every 14 days, where a dipping tank is available, or, in the absence of a dipping tank, by thorough spraying with an insecticide.
- (c) That movement of such cattle only shall be permitted :—
  - (1) Along the main roads of the Melssetter District.
  - (2) From Umtali to the Makondo Copper Fields.
  - (3) From Melssetter to Umtali.

8. In the event of failure of pasturage or water on land on which cattle are located the movement of such cattle will be permitted, provided :

- (a) That such movement shall be to the nearest available pasturage by the most suitable route.
- (b) That written consent be obtained in terms of Section 2, clause (b) hereof.
- (c) That such movement shall be by permit only of a duly authorised officer and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector of the district.

9. All applications for the removal of cattle under Sections 2, 3 and 8 hereof shall be submitted to, and approved of by, the local Veterinary Officer before being granted.

10. All permits granted under the provisions of these Regulations shall specify the number and brands of cattle, route to be travelled and period allowed, and may define places of outspan, and all other conditions endorsed on such permits by the officer issuing the same shall be strictly observed.

11. All veldt-fed animals within the limits of the various commonages or town lands, or other centre where there is common grazing ground within the districts of Umtali and Melsetter and the scheduled area at Selukwe, upon which public dipping tanks have been established, shall be dipped therein at least once every 14 days; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

12. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these regulations in respect of any dipping done at a public dipping tank :—

For Horned Cattle (six months old and over)	..	3d. per head.
For Horses and Mules	..	3d. "
For Calves (under six months) and Donkeys	..	2d. "
For Small Stock	..	1d. "

with a minimum charge of 6d. for any number of animals not aggregating such fee under the above tariff.

13. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed: provided that the Inspector may at his discretion carry out such disinfection with the assistance of and at the entire cost of the owner of the animals sprayed, the cost of such disinfecting being payable at the time of spraying.

14. Whenever the owner, occupier, or manager of a farm shall adopt means for cleansing his cattle running thereon, either by spraying or dipping or any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the same farm to cleanse such cattle or any others before permitting them to enter or pass over such an area, and the Native Commissioner of the district in which such farm is situated may enter into an arrangement with the native owners of cattle, to cleanse such cattle at a charge to be mutually agreed upon between the said owner, occupier or manager and the said native owners.

15. Any person contravening the provisions of these regulations shall be liable to the punishments prescribed by the Ordinance, and in cases where no special punishment is prescribed by the said Ordinance to a fine not exceeding £20, or to a period not exceeding three months' imprisonment with or without hard labour in default of payment of any fine inflicted.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 40 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 20th February, 1908.

#### AFRICAN COAST FEVER.

[It is hereby notified for public information that Government Notice No. 217 of the 10th October, 1907, is hereby amended by extending the provisions of Section 6 thereof to the movement of working cattle in the Native District of Ndanga and that portion of the Victoria Native District

lying west of the Popotekwe River and north of the Ndanga Road, provided, however, that such movement shall only take place as between occupied farms and for purposes connected with employment at the Umkondo Mine.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 67 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 19th March, 1908.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by Section 5 of the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw that portion of Government Notice No. 94 of 1905 relating to an area set apart for the depasturing and quarantine of slaughter cattle at Selukwe, and declare the undermentioned area to be set apart in lieu thereof:—

A piece of fenced land in extent about 300 acres, situated on the farm Sebanga and adjacent to the Township of Selukwe.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 211 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 3rd October, 1907.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby cancel Government Notice No. 157 of 1907, and declare the following to be of full force and effect in lieu thereof:—

Until further notice no person shall introduce into Southern Rhodesia from the area of Cape Colony, lying East of and including the divisions of George, Oudtshoorn, Uniondale, Willowmore, Aberdeen, Murraysburg, Richmond, Britstown, Hope Town, Herbert and Kimberley, any nursery stock, ornamental plants and shrubs, fruit or portions thereof, save as is in the next succeeding paragraph provided.

Any consignment of farm produce (which term shall include articles of consumption grown on a farm other than produce of a vine) may be introduced if accompanied by a certificate of a Magistrate or a Justice of the Peace of the district in which it is produced to the effect that such production was outside a radius of one quarter of a mile from any vine, virginian creeper or plant belonging to the family *vitaceæ*.

If at any time an Inspector shall find any tree, plant, fruit, vegetable, or portion thereof introduced into this Territory in contravention of this Regulation he shall order the same to be immediately removed from the Territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stock from the aforesaid areas which have been granted under Section 16 of Government Notice No. 141 of 1906 shall be and are hereby withdrawn.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 236 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 21st November, 1907.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

**U**NDER and by virtue of the powers vested in me by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that, notwithstanding anything to the contrary appearing in Government Notice No. 141 of 1906, and until further notice, the importation into this territory of any tree, shrub, or vegetable, and the fruit, leaves, cuttings, bark or any part thereof whatsoever, except seed, from the Orange River Colony is strictly prohibited.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof introduced into this territory in contravention of this regulation, he shall order the same immediately to be removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stocks from the aforesaid Colony which have been granted under Section 16, Government Notice No. 141 of 1906, shall be and are hereby withdrawn.

Any person guilty of a contravention of these regulations shall be liable to a fine not exceeding £10, or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 9 of 1907.

#### NORTH-WESTERN RHODESIA.

**W**HEREAS there is reason to believe that certain diseases in cattle exist in the Territory of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, and it is therefore expedient to take measures to prevent the spread of such diseases to North-Western Rhodesia.

Now, therefore, under and by virtue of the powers in me vested by Section 2 of His Excellency the High Commissioner's Proclamation, No. 18 of 1906, bearing date the 31st day of July, 1906, I do hereby order and declare and make known as follows:—

1. That Government Notices, No. 2 of 1902, and No. 11 of 1906, are hereby withdrawn, and the following Regulations substituted:
2. The introduction of any bull, ox, cow, heifer or calf or the meat of any such animals, into the Territory of North-Western Rhodesia from the Territories of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, is prohibited until further notice.
3. No person shall introduce into the Territory of North-Western Rhodesia from the Territories aforesaid, any horse, mare, gelding, mule, donkey, sheep, goat or pig, horns or skins, or any kind of vehicle, wagon gear, trek gear, or harness, without having first obtained the special permission in writing of a District Commissioner, Civil Commissioner, or other person thereto authorized by

- me; and such animals, horses, skins, vehicles, gear, or harness, shall enter the Territory of North-Western Rhodesia at such place, and under such conditions as regards quarantine and disinfection, as shall be ordered by the person issuing such written permission as is above described.
4. Whenever any conditions as to quarantine, isolation, disinfection or otherwise, are imposed, such conditions shall be fulfilled at the sole risk and expense of the owner, consignee, or other person concerned.
  5. All live stock imported into the Territory by rail by way of Victoria Falls and Livingstone, shall be inspected at Livingstone Station, and, whenever disinfection is ordered, shall be disinfected at that Station.
  6. In the case of live stock consigned to any point on the railway line north of Livingstone Station, the officer authorized to issue the written permission aforesaid shall further order the disinfection of the truck or horse-box in which such stock is being conveyed. Such disinfection shall be carried out at the expense of the owner or consignee of the stock, or other person concerned therein.
  7. Consignors and importers of live stock shall give not less than seven days' notice of the arrival of such stock at Livingstone Station. Such notice shall be given to the Civil Commissioner, Livingstone, or to such other official as may hereafter be appointed.

ROBERT CODRINGTON,  
Administrator.

By command of His Honour the Administrator,

HENRY RANGELEY,  
Acting Secretary.

Administrator's Office,  
Livingstone, North-Western Rhodesia.  
30th September, 1907.

## Departmental Notices.

### DESTRUCTION OF WILD CARNIVORA, ETC.

It is hereby notified for public information that the Notice issued by this Department, dated 8th June, 1906, offering certain rewards for the destruction of wild carnivora, etc., will, *after 31st March, 1908*, cease and determine, and thereafter rewards will be paid only on the scale and conditions herein set forth.

#### 2. Rewards will be paid as follows:—

For each Lion	£3	0	0
„ Leopard	1	0	0
„ Cheetah	1	0	0
„ Wild Dog	0	10	0
„ Crocodile, of not less than 3 ft. in length	0	10	0

3. Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the district, within three months of the date upon which the animal is killed, on a declaration made in the form of the annexure hereto.

4. In proof of destruction, applicants for rewards will be required to produce and surrender, in the case of Lion, Leopard or Cheetah, the skin with the tail not severed, and in the case of Crocodile or Wild Dog, the unskinned head.

5. The skins and heads of animals for which rewards have been paid shall be the property of the Government, and shall be disposed of in such manner as may be decided on.

E. ROSS TOWNSEND,  
Secretary for Agriculture.

#### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

#### STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 3s. 6d. per ounce.

#### DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

#### GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree*.—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

### VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

### PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

### TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	per oz.	
	s.	d.
Turkish, Yenedje, Xanthi, Aya Solouk ... ..	1	6
Turkish, Cavalla ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0

## TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price  $2\frac{1}{2}$ d. per square yard.

## CULTURE OF TOBACCO.

This book, by G. M. Odlum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

PRIZE COMPETITION FOR RHODESIAN  
GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown each season during the two years, 1907 and 1908.

1. For Rhodesian grown leaf from Turkish seed and cured in the usual Turkish manner.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over :  
£75.

2. For Rhodesian grown leaf from American seed and blue cured.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over :  
£75.

## CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.

2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.

3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.

4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.

5. No competitor shall enter for both prizes in the same class.

6. All competing crops shall be the product of the season in which they are entered for competition.

7. Crops can be lodged at one of the Company's warehouses, which will be advertised later, any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st October in each year.

## INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows:—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Messrs. Hart and Co., Parker's Buildings (P.O. Box 898), Cape Town, Advertising Agents for Cape Colony, Transvaal, Orange River Colony, Natal, and Great Britain. J. Kapnek, P.O. Box 91, Salisbury for Rhodesia.



# THE RHODESIAN AGRICULTURAL JOURNAL

Issued by the Agricultural Department.

EDITED BY J. CAMERON.

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## Editorial.

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At this period of the year, when the returns for last season's crops are being realised, the matter of what crops, what soils, and what methods of cultivation have been successful are no longer questions of surmise, but of fact.

While acknowledging that the nature of the season has the greatest influence on the growth and maturing of crops yet, even among failures there are many points that come under discussion and are worthy of being discussed by those who are particularly interested.

When the failure of a crop has been attributed to its proper cause, a definite step has been gained whereon improvements may start from in future.

It is in this way that much knowledge has been acquired in this country, during the past few years that procedure in agriculture has been made the subject of study and development.

The more that definite knowledge of what the steps are that must be taken in securing good results, the more it becomes apparent that the knowledge necessary to gain success must come from experience acquired through dealing with the country itself.

There is no high road to successful farming in Rhodesia, nor is the farming procedure that has been evolved suiting the conditions of some other country, the exact model to be copied always when moulding systems here.

In so far as they have gone, the farming methods best adapted for Rhodesia are those that have been developed through the application and perseverance of the farmers themselves.

From the creditable position they are now taking, and in the process of acquiring that experience which has led up to it, farmers are now able to get some prospect of the wide field of advancement that lies before them; and also that the lines on which success is to be attained are step by step depending largely on their own efforts and their own skill.

In the early days of farming in Rhodesia, notwithstanding the enticing look of the country, it was common to hear its capabilities for agriculture despised. That was before they knew how to take it.

Now the solid worth of the land when in good hands has been clearly exposed. The farming products of Rhodesia that are at the present day being realised are unsurpassed in excellence.

The maize grown in Rhodesia is of such outstanding quality that, taking the lead in all maize-growing countries, this class is now in demand for household consumption in the large towns of Great Britain.

The encouragement thus given to the culture of maize—one of the staple products of this country—is far reaching and comes very opportunely.

But the grain products of Rhodesia are not confined to maize. Samples of the wheat now being grown prove that its culture has only to be taken up with systematic perseverance when the success of wheat is also assured.

A rust-proof wheat is now being brought into the country, which no doubt will give wheat growing an impetus. But whether or not this particular seed will prove rust resisting in Rhodesia, it is merely a question of time and an application of skilful methods when a rust-resisting wheat will be brought out.

The success of tobacco growing illustrates the inherent possibilities within the country that lie hidden and veiled.

until they are exposed and brought to light through enterprise—the skilful endeavour of practical farmers guided by intelligence.

From uncertain and casual beginnings the cultivation of tobacco has been followed up and pursued until at the present time Rhodesian grown tobacco took the leading place at the London Exhibition in competition with all the other colonies of the Empire.

Every season new facts are gained which are taken note of and utilised in building up definite methods of culture and treatment for the future.

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At the Agricultural Shows taking place this month important features are displayed which will form food for reflection and thinking over as to the tendency, and the lines of expansion along which agricultural industries are proceeding.

In past years cattle exhibits have been greatly hampered through restrictions on cattle movements, but this year more confidence is being established, which, together with extensive importations of well-bred animals, should bring larger entries and keener competition than hitherto.

It is of the greatest importance to keep in view, however, that breeding of show animals within the country is what Rhodesia requires—utilising natural resources that are at least equal to, and even superior to, the other South African Colonies.

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The collection of Rhodesian grasses instituted by the Director of Education among the pupils attending schools throughout Rhodesia has resulted in bringing out interesting and valuable information.

About 100 different grasses have been gathered, among which there are several new species and at least one new genus. A *paspalum* grass is also found indigenous to the country.

These grasses are now in the hands of experts for classification and naming, whereupon further attention will be given to this subject in a future Journal.

Dr. Schönland, Director of the Rhodes' University Museum, Grahamstown, has very kindly offered his assistance in identifying and classifying Rhodesian grasses and plants. The working out of the Rhodesian Flora will be

much advanced by parties taking an interest and forwarding specimens to this Department for transmission to Dr. Schönland.

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We are now able to state that Mr. Mennell, Curator of the Rhodesia Museum, Bulawayo, has kindly granted his assistance, and the services of the staff of the Museum, in identifying and classifying specimens of the Rhodesian Fauna.

He is particularly interested in the classes of animals and insects that affect farming industries.

Specimens of the small carnivora, the rodents (rats, mice, etc.), all burrowing animals, frogs, etc., all kinds of birds, and insects of every description.

Farmers and others who are taking interest will have specimens forwarded through this Department to Mr. Mennell, and he has arranged in securing authoritative advice on such subjects that lie outside the scope of the Museum.

Besides the scientific knowledge thus gained the worth to the farming interest lies in acquiring a knowledge of what are the animals that are destructive to the farming industry, and what are those that are innocent or even helpful, following with the measures best to be taken for destroying the one and protecting the other.

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## **Farming on Rhodes' Estate, Matopos.**

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The farm Westacre, occupied by Mr. E. A. Hull, lies about 18 miles south of Bulawayo.

It has been the station where many agricultural problems have been taken in hand, and where much has been accomplished towards bringing out what can be done towards overcoming farming difficulties pertaining to the country.

The Matopo dam, built by the late Mr. Rhodes, now irrigates more than 600 acres of land. The soil on Westacre farm is partly black and partly red loam—all deep, dry, fertile land.

About 300 acres are annually put under oat forage, good crops being always secured under irrigation.

A considerable breadth has been laid down with lucerne, about 30 acres, part of which has been in for two years. The lucerne is sown in rows about 20 inches apart along with a nurse crop (oat forage).

Several cuttings were obtained during the past season, but a good deal of natural grass has lately come up, obscuring it.

A lucerne cultivator of a new and improved pattern, acquired by Mr. Hull, is doing excellent work in rooting out grass and weeds without in any way hurting the lucerne. There is no doubt it will be of the greatest service, not only in rooting out weeds, but in shaking up and promoting a more vigorous and healthy growth of the lucerne.

Here as elsewhere there is no trace of nodules on the roots, thus directing attention towards having a culture of the appropriate organism introduced.

### CATTLE.

There is a large herd of cross cows kept on the farm which are partly used for dairying. Two highly-bred Lincoln Red bulls have lately been imported direct from England, and they are now becoming acclimatised to their new surroundings.

An improved character should be given to the progeny from these bulls compared with the more common classes now to be seen, and much general interest attaches to results which are so enterprisingly sought for by Mr. Hull.

### PIGS.

A high-class and very useful breed of Middle Yorks are kept on the farm. They are very carefully and systematically fed and otherwise attended to, and they yield highly profitable returns.

A great majority of the young sows would make excellent breeders, helping to swell the number of well-bred pigs in the country anent the coming bacon factory.

### OSTRICHES.

About 100 ostriches are now grazing on the farm, many of whom are young, and have been bred from good strains from the Colony.

They yield very substantial returns for the outlay connected with keeping them, and Mr. Hull contemplates further improving them by introducing superior birds of the best strains, and also laying down more lucerne for feeding them.

## STOCK FARMING IN THE MATOPOS.

In no part of Rhodesia are such large numbers of useful, well-bred animals to be found than on the Sauerdale Estate.

The cattle are chiefly Cape cows introduced by the late Mr. Rhodes, and the progeny from them.

On account of the restrictions affecting imports, the bulls were unfortunately in many cases not too well bred.

However, on the whole, the stocks are a good class of animals, and produce excellent results from well-bred bulls.

At Lucydale, occupied by Mr. P. H. Ross, an Aberdeen-Angus bull was introduced among the herd about five years ago. His progeny have turned out superior in every respect, including hardiness, shiftiness on the veldt, and quickness of growth. They are as large in two years as natives and Africanders are at four and five.

There are many crosses from this bull with native cows. These are all black, and the greater part hornless. It has been substantially proved that for crossing purposes the Aberdeen-Angus is far ahead of any other imported breed, and this fact is obtaining recognition among those interested in the subject.

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## Rust-proof Wheat.

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A variety of rust-proof wheat has lately been evolved by Mr. H. W. J. Blore at Rivenhill Farm, Ficksburg, Orange River Colony.

The wheat is called Bobs Rust-proof, and for the past three seasons has never shown the smallest symptoms of any disease whatever.

Mr. Blore has been asked by farmers whether the wheat can be grown in winter as well as in spring, when he replies:—

“There is no objection to this course except that it would be far better to subject the plants to those conditions under which rust usually develops, or there would be no advantage in getting rust-proof seed, and we find that spring-sown wheat is attacked by this disease, while winter wheat seems to be free.

“This wheat is possessed of great vitality, and will flourish when other varieties succumb to lice and drought. It has never been irrigated or manured at Rivenhill, has withstood drought and lice, and last season gave me a grand crop.

“The soil on which it was sown was very rich—a loam, not clay. Where part of the acreage entered upon clay the plants were inclined to be feeble and spindly, owing to the drought experienced in the latter part of 1907.”

The system of tillage which Mr. Blore follows and which he recommends is as follows:—

“The main point in my system of tillage is to use land that has borne two crops of a cereal quite different from wheat such as maize. This means that the soil has not been exhausted of the constituents required by wheat, while it has had time to mature and mellow.

“For wheat to be sown in the spring, ploughing then takes place in the winter, and the following spring when the rains come another ploughing and harrowing is done.

“We have to be rather careful about tilling well, as we do not irrigate. The land should be ploughed and harrowed in winter, and re-ploughed, harrowed and rolled and again harrowed before sowing.”

### SEED FOR FARMERS IN RHODESIA.

A limited quantity has been secured by this Department from Mr. Blore for distribution among farmers in Rhodesia.

Applications should be sent in to the Secretary for Agriculture as early as possible by those willing to give this rust-proof wheat a trial.

It will be given out gratis in quantities sufficient to sow about a quarter or half an acre only; the only condition being that farmers receiving the seed shall make a report on its growth and send samples of the product to the Department, Salisbury.

## Land Settlement—Premier Estate, Umtali.

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The Premier Estate lies about thirteen miles north-west from Umtali.

The Umtali River, a large and permanent stream of water, runs through part of the Estate. In a large open valley, surrounded by bush-clad but rocky hills, there are three farms occupied having a river frontage.

One is being used as an experimental farm, one as a dairy farm, while the other is occupied by Mr. Cockerell.

On another farm near Old Umtali tobacco growing is being pursued on a considerable scale under the management of Mr. Deall.

Through the kindness of Mr. Wise and the several managers and occupiers, we were able to get a few notes during a visit on the work being carried out on these farms.

### EFFECTS OF MINERAL MANURES.

During last season a number of experiments have been carried out with the view of determining the value of mineral manures in promoting the growth of mealies.

Four lots of ground were marked off—A, B, C and D—which were sub-divided into plots containing one half an acre each, on which different manures were applied to each plot.

The mealies on Lot B were planted on January 7th, and on A, C and D on January 17th.

The difference of ten days in the time of planting has had a material effect on the crop this year, the rains since the 17th January being too light for bringing mealies to maturity.

The experiments, therefore, on A, C and D do not give results that are satisfactory since the crops have been too late in coming forward.

The only thing that is well marked is that the manured plots show more leaf and stalk and are much greener than the unmanured plots alongside.

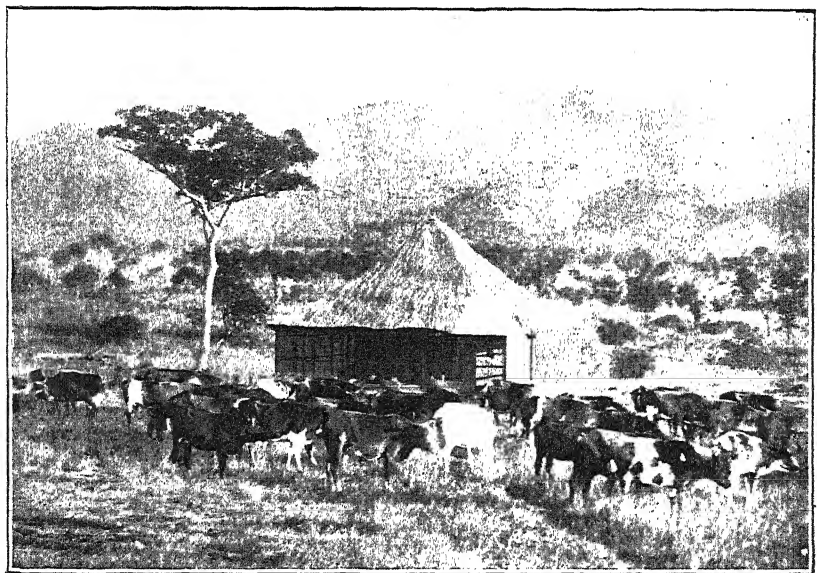
In the case of Plot B, six plots of one half acre each were manured, and all have come to full maturity. Check plots unmanured were alongside.



*Photo by]*

Cattle Grazing, M'Rewas.

*[Mr. W. Edwards, N.C.*



*Photo by]*

Dairy and Cows, Premier Estate.

*[Rev. E. L. Schrist,*



The manures applied were as follows :

### PLOT B.

Lot No. 1.	200 lbs. Superphosphate	per acre.
	100 lbs. Sulphate of Ammonia	„
„ No. 2.	200 lbs. Superphosphate	„
„ No. 3.	100 lbs. Superphosphate	„
	50 lbs. Nitrate of Potash	„
„ No. 4.	200 lbs. Superphosphate	„
	100 lbs. Sulphate of Potash	„
„ No. 5.	400 lbs. Safco	„
„ No. 6.	100 lbs. Safco	„
	100 lbs. Nitrate of Potash	„
	100 lbs. Superphosphate	„

The manures in each case were sown broadcast and harrowed in four days before planting.

The soil is a red loam, which has been growing a crop of mealies annually for the past seven or eight years.

The effects of the manure given to the different lots is conspicuously marked in every case.

The comparison with the unmanured plots alongside shows the manured plots standing more than two feet higher, much thicker stalks, and larger and better-filled cobs.

The relative superiority of any particular manure or mixture can only be ascertained when the plots are harvested and weighed. When this is completed the results will be given in the next Journal.

Meantime appearances would indicate that Nos. 3, 4, 5 and 6 are distinctly superior to Nos. 1 and 2. Boone County is the variety of mealies.

### WHEAT, OATS AND BARLEY.

About 15 acres of wheat have been sown on red loamy soil under irrigation. The baired looks healthy and strong with a fine even stand. Part of the land has been top-dressed with kraal manure.

About 30 acres of oats have been sown for forage, also under irrigation. The baired has come up healthy and strong with a thick stand.

Two acres of barley is also coming along very promisingly.

The land for these crops has been well ploughed and cultivated, has an excellent tilth, and is remarkably free from weeds.

### LUCERNE, VETCHES AND RAPE.

On another part of the farm a few acres of vetches and barley mixed, and vetches and oats have been sown for forage. The vetches show up as coming along vigorously amongst the barley and the oats.

A few acres of rape had been sown rather too late in the season, but a good part of the field has recovered under irrigation, and now promises to yield a large crop of succulent green food.

A field of seven acres is laid down in lucerne on a part of the farm, which analysis showed as being favourably adapted for that crop.

The land was well ploughed and harrowed, preparing a good seed bed when the seed was sown in March last. Already the plants are standing more than three inches high, standing thick and close all over with a fresh, healthy appearance.

There is no nurse crop, the land also being clean and free of weeds. Being under irrigation, the conditions as to soil and methods of culture render the success of this crop very hopeful and promising.

There is yet one drawback attaching to the growth of lucerne in this country, arising from the circumstance that nitrogen assimilating bacteria forming nodules clinging to the roots are altogether absent in all the samples of lucerne that we have hitherto examined growing in Rhodesia.

We examined the roots of lucerne growing in the garden at the Premier Estate that had been in for more than two years, and although the crop was standing more than two feet high and had an enormous root development, yet there was not any trace of nodules attaching to the roots.

A crop of beans (Canadian Wonder), growing alongside, had abundance of root nodules.

It would appear that in order to make the growth of lucerne more successful in Rhodesia, the introduction of the particular variety of bacteria belonging to lucerne is wholly necessary and essential.

## MEALIE HARVESTING.

A mealie reaper and binder is at work on the farm harvesting the mealies in the most admirable and efficient manner.

The machine is drawn by six mules, and takes one row at a time. It cuts and binds the stalks with the cobs on into bundles, like an ordinary reaper and binder, depositing the bundles in fours, which are set up to get thoroughly dry.

The machine is worked by an ordinary mule driver, and seems easily handled. We were informed by the manager that it gave no trouble whatever to keep going, both the cutting and binding proceeding day after day without a hitch.

It cuts eight acres per day, and the work is accomplished so smoothly that a large staff of boys is not required for harvesting.

After thoroughly drying on the field, the crop is carted to the husker and shredder, a machine that takes off the cobs from the stalk, tears off the leafy covering and drops them from the shoot ready for the bin. The stalks in going through the machine are shredded and blown out through a funnel to some distance by a powerful blast, and this distance is further extended by the ordinary straw carrier attachment.

All the machines, the husker and shredder, sheller, and mealie grinder, are driven by a very powerful traction engine, which is also used for haulage purposes on the farm.

In growing mealies on a large scale, the employment of machinery for dealing with the crop has many economical advantages, and no doubt when the perfect working and feasibility of using these machines has been more fully demonstrated, a desire to adopt them will become general.

## SHEEP.

A flock of about 100 Persian ewes were brought on to the farm 18 months ago, and they appear to have done remarkably well. The increase has been 100 per cent., and no losses of ewes have occurred either in the rainy or the dry season.

It is now becoming appreciated that pure-bred Persians thrive better than three-quarter or half-bred Persians. The presence of even a little wool on a sheep being a disadvantage where here as in most districts the veldt grasses are rank.

Under the systematic management of Mr. E. L. Waight, this farm is taking on a look of being in skilful hands, everything being done in a thoroughly well accomplished manner.

## TOBACCO FARM, PREMIER ESTATE.

This farm is under the management of Mr. Deall. About 30 acres were broken up and put under tobacco last season.

The crop has turned out very satisfactory, and the manager expresses himself equally well satisfied with the quality.

The farm is on a hard schist formation, and the soil is friable and easily worked, and has an open and porous subsoil.

The prospects of growing the best kinds of Rhodesian tobacco on many of the farms in this district are very encouraging.

Another farm on the Premier Estate is occupied by Mr. Cockerell.

Here within the space of two years the occupier has accomplished an amount of work, putting the farm in order that looks more like the result of a number of years.

Besides substantial brick buildings, dwelling house and outbuildings, over 200 acres have been brought under cultivation and bearing large crops. There is a large and well-fenced orchard, fully planted with fruit and other trees, the growth of which in the time is surprising.

A furrow has been dug leading from a stream rising high up among the hills, which leads to a dam built as a reservoir, by means of which a good deal of land will be brought under cultivation.

## DAIRY FARM, PREMIER ESTATE

A herd of some 50 cross-bred cows have been placed on the farm along with two S.A. Shorthorn bulls.

The dairy has been built on the most approved principles, while up-to-date utensils and appliances are being used for the manufacture of dairy products.

The Manager, Mr. Stokes, has made substantial provision for feeding the cows during the winter months, large stacks of hay having been harvested for this purpose.

When all arrangements in the details for carrying out dairy farming are allowed time for being put into effect, there is promise that under the capable management of Mr. Stokes the natural advantages pertaining to the farm for the particular purpose will be brought to good account.

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## Grain for Export.

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In April last a visit was paid to Rhodesia by Mr. Colebrook, who represents a large firm of grain importers in Southampton.

At a meeting of the Farmers' Association held in Salisbury, Mr. Colebrook exhibited samples of all the different kinds of grain that were fetching the highest price in the London Market, together with samples from different countries that might be found suitable for growing in Rhodesia.

The samples of maize showed that a different type of grain than what is grown by farmers in Rhodesia is more popular in the London Market.

Cinquantina maize, grown in Russia, fetches the top price. It is a round, yellow maize, much smaller in the grain than Rhodesian maize, some of the grains being only about the size of a pea.

This Russian maize is flinty and semi-translucent, and herein only does it differ much from the common kaffir mealie of Rhodesia. On the fertile steppes of Russia the crop is about 10 bags of 240 lbs. per acre.

Maize from Odessa and the Argentine also meet a good market, and are the same class of grain. The best Russian fetches about 1s. per bag more than other maize, while Odessa and Argentine from 6d. to 9d. more.

Mr. Colebrook considered that from what he had seen Rhodesian maize was on a par with American. The average price of American maize was about 9s. 6d. per bag landed in England.

If maize was exported from Rhodesia under an organised scheme the local price at any railway station would be 7s. per bag. Thus if Rhodesian farmers were to grow mealies at 7s. per bag, there is an unlimited demand both in England and in Germany, a million bags not affecting the market.

Mr. Colebrook refrained from suggesting or advising farmers to change their type of grain since the best class of white maize grown in Rhodesia was finding favour in large centres of population as an article of diet, and if large supplies were forwarded further demand would be encouraged when the price would tend to rise for that particular class.

At the same time, the Russian type of maize was worthy of a trial since the period of growth required was much shorter than Rhodesian maize, and this earliness might be taken advantage of when the season for planting other maize was getting too late.

Mr. Colebrook also produced a sample of wheat, No. 1 Manitoba hard, which commands the highest price in the London Market; also samples of barley from Asia Minor and the Persian Gulf, for which there was a large demand in England.

He also showed samples of wheat from the Persian Gulf and from India, which were reputed rust resisting, and which were to be recommended for trial in Rhodesia.

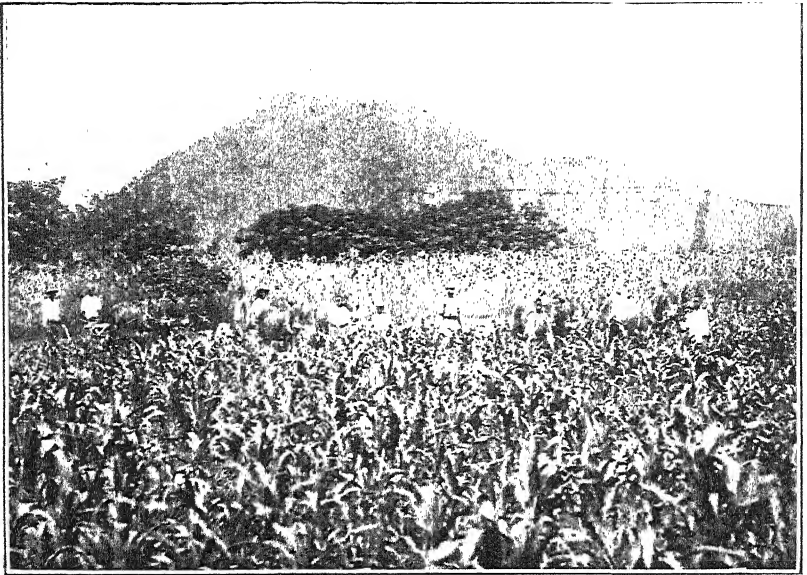
Samples of Buckwheat, grown in France, were also shown, this grain being freely grown in Rhodesia.

It was interesting to hear from Mr. Colebrook that, with regard to low prices for grain, when the prices in the Argentine got very low the farmers went in for cattle.

But instead of the production of grain getting less, it enormously increased, till now there is a huge export of both grain and cattle.

Parcels of seed of the different grains brought by Mr. Colebrook have been distributed to a large number of farmers throughout the country, and the results will be watched with much interest.

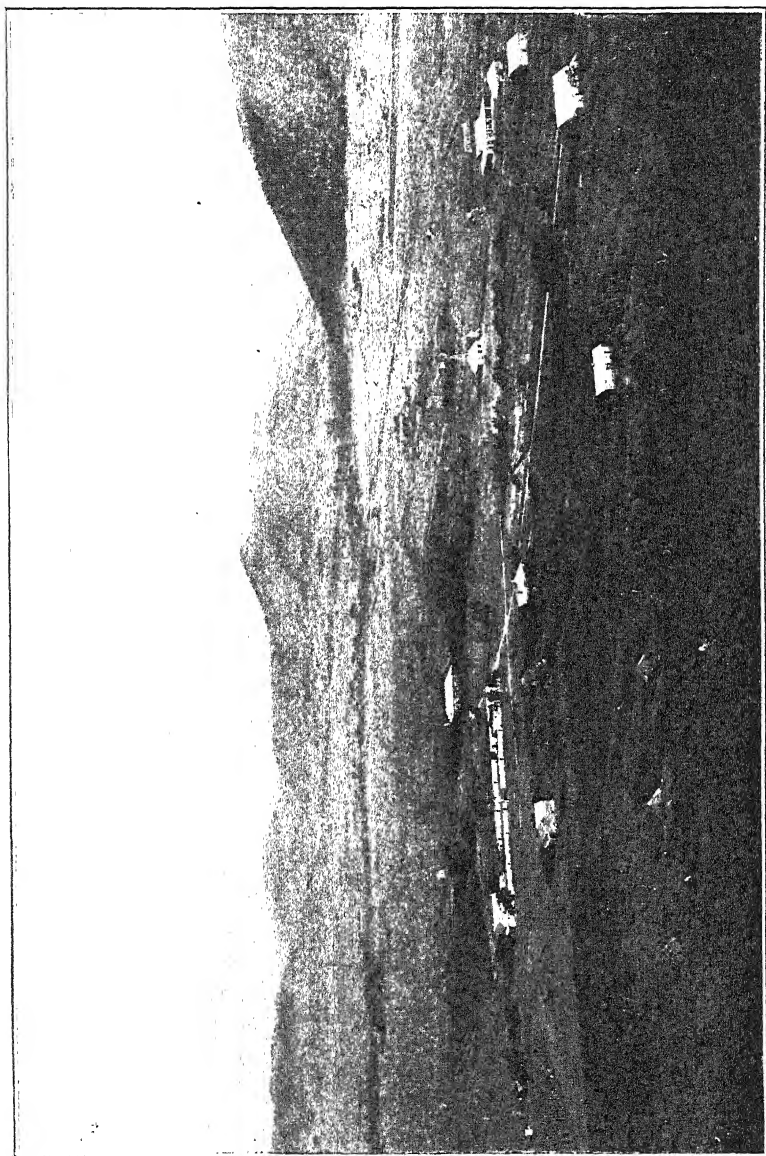




*Photolith*

Mealie Cultivation at Old Umtali Mission Farm.

*[Rev. E. L. Schrist.*



*Photoblog*

Old Untali Mission Farm.

[Rev. B. L. Scherist.



## **Old Umtali Mission.**

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Under the auspices of the Rev. Mr. Sechrist, a large farm is carried on in connection with the Wesleyan Mission.

The chief direction given to the cultivation pursued is the production of vegetable foods for consumption among the large number of natives receiving instruction and maintenance at the Mission.

It thus happens that the Manager, Mr. Roberts, has been making experiments with a great variety of grains and vegetables from different countries, and no little information is obtainable concerning what does and what does not do well.

Besides ground nuts, beans of all kinds, sweet potatoes, etc., an edible and profusely-growing vegetable has been found useful called Ochra, or Indian Pea. The pods are culled at an early stage when quite green, and a succession comes on rapidly extending over the whole season. It is luscious and pleasant to eat, while it is as easily grown as mealies.

Teostinte has also been grown as feed for animals. A few acres on a soil that was considered too poor for mealies was carrying a large crop of Teostinte. The value of this plant as a fodder crop was manifested on this farm in the most unmistakable manner.

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## **Rhodesian Tobacco at the London Exhibition.**

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The following extracts from the Judges' report to the Manager, Tobacco Exhibition, London, dated March 27th, 1908, are of the liveliest interest to Rhodesian farmers:—

“Dear Sir,—As requested by you, we have the pleasure of giving you a few of the impressions which we formed when judging the samples of Colonial tobacco at the Exhibition for the awards given to the Exhibitors. Of course, it is very difficult without having an opportunity of thoroughly testing and smoking the tobacco to

form a thoroughly accurate opinion as to its true merits. Most of the samples appear to have been grown for an experiment for the first time, and are no doubt capable of better development, and may possibly be of commercial value in this country.

"Our remarks are based upon the requirements of the market here, of which one essential, especially for tobaccos for pipe and cigarette purposes, is that it should be in very dry condition, which we found very much lacking in a good many of the samples exhibited.

"*Rhodesia* (Exhibited by the British South Africa Co.).—This was by far the best display, showing, not only samples of the various sorts of tobacco, but also cases and bales of tobaccos grown from Virginia and Turkish seed, and produced by different growers in the Colony. The samples were too numerous to specify separately. We consider the tobacco very well handled, good colour and free burning, but we do not think the tobacco contains the original characteristics of flavour of the tobaccos from the seed of which it has been grown. The tobacco has a distinctive quality of its own, and we think it is useful tobacco if sold at prices to compete with other sorts.

"We award a Diploma for Gold Medal to the British South Africa Co., Ltd., Rhodesia, for various growers' exhibits of cigarette and pipe tobaccos for best tobacco shown and for best exhibit."

*Rhodesian Leaf from Turkish Seed*.—Three samples of Rhodesian leaf reared from Turkish seed are exhibited by the Myoka (Rhodesia) Tobacco Company, Ltd. The three bales are all the same tobaccos, No. 1 being the best, No. 2 the next best, and No. 3 the poorest quality. The Myoka Company has not been at work on the concession quite a year, and this particular tobacco was grown out of season, so this must be borne in mind when judging the quality of the tobacco.

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### **Tobacco Notes.**

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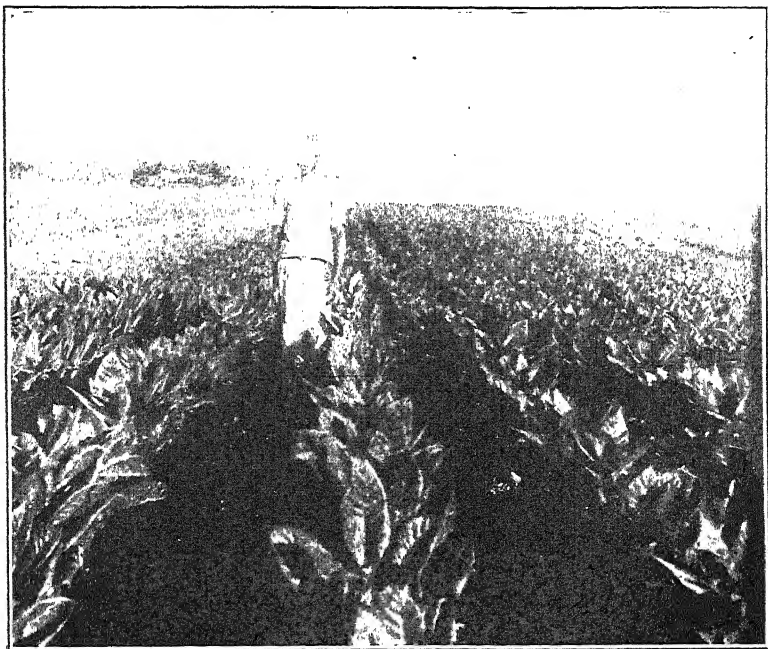
The tobacco which is now being brought to the warehouse shows that this season's crop is far in advance of what it was in previous years.



*Photo by]*

Growing Tobacco, Stapleford, "Goldfinder."

*[R. J. Laidlaw.*





A large number of the consignments are of the highest grade of leaf, and even of particular excellence among the choicest tobaccos.

A notable consignment came from Mazoe, grown and cured by Mr. Garvin. This lot consists of 15,000 lbs. of bright Virginia leaf, the whole of it being of the same uniform excellence.

More than 30,000 lbs. are now in the warehouse at Salisbury; and about the same amount has been brought to the warehouse at Bulawayo.

Much the greater part of all this tobacco is of the very choicest class, showing careful growing and curing, together with close attention bestowed in every detail of handling.

But while this is so in the main, there are still consignments coming in exhibiting the casual and slipshod attention of earlier days. In some cases a little ordinary negligence has made such a difference in the tobacco that what was worth 1s. per lb. is now only worth 1d.

Only by making the growing and curing of tobacco a speciality can the industry be forced to the front, but this season has shown that the natural advantages belonging to the country are peculiarly favourable, especially on a certain class of soil and which is very abundant in nearly every district.

The tobacco crop this year is estimated at 250,000 lbs.

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### Rhodes' Matopo Nursery.

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Among the numerous species of trees that are being experimented with at the Nursery there are a few that have special interest to farmers.

Common cypress (*Cupressus sempervirens*).—This variety is very hardy against frost and drought. It is a fast grower, and only occasionally suffers from drought when well established. It likes limestone soil, but grows rapidly almost anywhere. This tree is valued for its wood (Gopher wood), which is proof against insects. Occasionally the young trees are attacked by termites. In some localities here it has suffered from sunburn or scorching by hot winds.

*Cupressus pyramidalis*.—This variety of cypress grows better almost than any tree in Rhodesia, and in all soils. Its wood is most valuable, and no other tree can be grown in such numbers per acre (about 5,000).

It can hardly be considered an ornamental tree (often called the Churchyard cypress), but it is most valuable commercially.

The Bottle Tree of Australia (*Brachychiton Populneus*), "Kurrajong."—A handsome tree, with a bole shaped like a champagne bottle. Suitable for avenues. Stems have been recorded 11 feet in circumference 4 feet from the ground. *Leaves very useful as fodder for pasture animals.* Some of the trees have done well, but are slow in growth.

*E. corynocalyx* (Sugar gum).—It is a good drought resister, and when established will stand frost to a great degree. Two-year-old trees came through this last winter with 14 degrees of frost. *Foliage said to attract cattle, which browse on lower branches.*

It might, therefore, be planted to furnish food for cattle in droughts.

An evergreen tree that can be eaten by stock is one of the most useful that can be introduced, and the Curator of the Park is doing a service in demonstrating what kinds are capable of being grown in Rhodesia.

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## Cotton.

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The Cotton Plantation being carried on by the Northern Copper Co., Ltd., in the Lusenfwa Valley, North-West Rhodesia, is doing fairly well.

A crop of ten tons of cotton was expected this season, only a devastating hailstorm did considerable damage to the plants.

Ginning machines have been introduced for making the cotton ready for export.

Cotton in that part of Rhodesia would appear to give every promise of being successful.

## **A Specific Lung Disease of Calves.**

By LL. E. W. BEVAN, M.R.C.V.S.

(Government Veterinary Surgeon, Salisbury, Rhodesia.)

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Re-printed from the Journal of Comparative Pathology  
and Therapeutics, London.

From time to time during the past eight years a lung disease of calves has been prevalent on certain dairy farms in the neighbourhood of Salisbury, Rhodesia. The mortality from the disease has been very serious. In 1900, at one dairy, thirty-five calves died out of seventy; in 1901 seventy out of ninety succumbed on this dairy, and a second dairy suffered in an equally serious manner.

Dormant during 1903 and 1904, the years when African Coast Fever accounted for most of the mortalities among young stock, it again appeared in 1905.

Fortunately the last outbreaks have not been accompanied by such a heavy death-rate—a result partly due to therapeutic measures adopted, but chiefly attributable to the more vigorous prophylactic measures instituted by the Veterinary Department and by the owners themselves, who have learnt the extreme gravity of the disease and the necessity for hygienic precautions.

It is possible that the disease exists in other parts of the country, but it is only in Salisbury that the malady has taken on a purely pneumonic character. In Matabeleland reports of what is called “liver disease” among dairy calves are frequently recorded, but it would appear that this is distinct from the lung disease about to be described, although means employed to combat the latter have been said to have been followed by beneficial results when adopted to the liver complaint. A possible explanation for this may be found in the following notes.

*Occurrence.*—During the first outbreaks of the disease it was thought that it occurred only among calves between the ages of six weeks and six months; but, although animals of this age would appear to be the principal victims, it has been found that cases do occur, in exceptional circumstances, in calves as old as nine months. The disease would appear to be one of certain localities, for

during the last few outbreaks it has been possible to incriminate certain small areas; indeed, at one dairy, a small calf-kraal, about 20 feet by 10 feet, was found, by a process of exclusion, to be the principal site of the infection.

If the disease is allowed to run unchecked, and the calves to wander indiscriminately over the dairy farm, the whole locality becomes contaminated, and one dairyman was compelled to move his dairy twice on this account. The third attempt was followed by a similar unfortunate state of affairs, and the system of sending in-calf cows to an outlying farm to calve had to be adopted.

The change from the second to the third site, in the particular instance, was attended by a very interesting result, which may be alluded to here. The disease had made its appearance at the second dairy in 1905, but, owing to the severe methods of isolation and disinfection practised, was "got in hand" with but a small death-rate. The whole dairy and every animal on it was so frequently and thoroughly sprayed with strong disinfectants that it appeared, from the cessation of the disease, that the infection had been destroyed. It may be mentioned that at that time and during the following year the law forbade young calves being allowed to run at large on areas where African Coast Fever had existed within the previous twelve months, and Salisbury Commonage being one of these infected areas, the calves at the dairy in question were continually kept enclosed in a calf-pen, and were systematically dipped.

In February, 1907, it was found necessary to enlarge the dairy, and certain fittings were removed to a new establishment. Calves born at this time soon after birth developed unmistakable symptoms of the lung disease, and it was at the time concluded that the dismantling of the buildings of the second dairy had liberated or exposed the causal organism of the disease.

At the time of the changing of the second dairy to the new site, Salisbury Commonage was declared free from danger from African coast fever, and the quarantine imposed upon calves was raised. Bovine malaria (Texas fever or redwater) being endemic to the Salisbury district, these calves were thus for the first time exposed to gross infection by the blue tick, which was plentiful at the time of their release, and, as a result, they suffered from piroplasmiasis in a greater or lesser degree, some dying from

acute hæmoglobinuria. It was during this particular outbreak noticed for the first time that calves as old as nine months were liable to suffer from the lung complaint.

The possible connection between redwater and the lung disease will be discussed later, but it may be further recorded in this place that during the past months the disease has appeared on a dairy farm free from the malady since 1901, and that the sick calves have been covered with the blue tick, which has become abundant with the first rains. Examination of blood smears from the calves on this farm was not made until the disease had established itself, but has been latterly carried out, with the result that the blood of several of the calves suffering from the lung disease has shown lesions of piroplasmosis—either parasitic invasion of red cells, or alterations such as poikilocytosis and basophile granulations. Further, the blood of four calves which, by way of experiment, had been housed apart in a hut since birth, and were free from lung disease, was apparently normal.

The disease generally occurs during the early months of the year, during the rainy season; but on more than one occasion it has appeared in October and November, before the rains have commenced. After the first case has made its appearance others follow in alarming rapidity, and it is not long before nearly every calf on the farm is suffering more or less severely. This particularly relates to calves which are confined to a small area; calves running constantly with their mothers have been known to escape, although coming into contact with sick calves when brought up at milking time. When an outbreak has become fairly established, however, it is rare that any of the calves entirely escape.

*Symptoms.*—The affected calves show the usual symptoms of ill-health, namely, staring coat, dry muzzle, tucked up and unthrifty appearance. A sick calf may be detected early in the disease by the listless manner in which it stands and by the dry and staring condition of its coat; later, the skin becomes scurfy and wrinkled, and appears particularly liable to invasion by parasites, especially ticks. After the disease has progressed for a day or two the calf moves unsteadily, or lies about breathing heavily and even panting, with its mouth open and its tongue protruding.

Among the younger animals a foetid diarrhœa has been marked, the fæces being of a light colour, sometimes clay-coloured or slate-coloured, and occasionally resembling the fæces met with in specific white scour. In one or two cases dysentery has been present. The dung generally has a very offensive odour, and accumulates around the animal's hind quarters, rendering the calf and the place in which it is quartered filthy in the extreme.

During an outbreak cases have been met with in which the scouring has not been accompanied by lung symptoms; and it may be mentioned that a recent outbreak of specific white scour has proved that that disease, *per se*, does exist in this district.

Perhaps the most characteristic symptom of the disease is a short cough, chiefly noticed when the animal is disturbed or when it first leaves the shed and comes into the cooler air outside, or when it first takes milk from its mother. It was by this well-known symptom that the disease was found to be present in those older calves which did not manifest the usual attendant symptoms in such a marked degree. As the disease progresses the breath of the sick calves often becomes offensive, and in a few cases an ulcerated condition of the tongue and mucuous membranes of the mouth has been observed. In one or two instances an accumulation of pus has been met with at the umbilicus, causing a large and visible swelling noticeable during life. In not a few cases, where the disease has been complicated with redwater, hæmoglobinuria has been present.

A remarkable feature of the disease is the fact that the sick animal does not refuse its food, and that calves not weaned will suck their mothers as long as they have the strength to do so. In those cases among older calves the lung disease has always been aggravated by redwater, and there has been some loss of appetite, attributable rather to the latter disease than to the lung affection.

*Lesions.*—In the majority of cases, on *post-mortem* examination, the principal lesions are met with in the lungs, which are found studded with numerous small nodules, varying from the size of a millet grain to that of a pea. In the early stages of the disease these nodules may not appear on the surface of the lung, and their presence may only be detected by palpation. Later, they

are visible as small elevations on the surface of the lung, and resemble in many respects a tubercle nodule. In a well advanced case the nodules become densely clustered together, and may render portions of the lung almost solid. In addition to this nodulated condition there is generally present a certain amount of ordinary pneumonia, and occasionally pleurisy and adhesions are met with. On section, the nodules may be shelled out, and are found to be made up of a cheesy material of a yellow colour and again recalling a tubercle nodule, except that calcification does not appear to take place. The anterior lobes of the lung seem particularly liable to become involved, especially at their edges. In some cases abscesses are found in the liver, and on one or two occasions they have been met with at the navel. In those cases where scour has been marked during life an inflammatory condition of the bowels may be observed. In a large number of instances it has been remarked that, on setting, the fat of the carcase has become a bright yellow colour, and the liver, after exposure to the air for a few minutes, has become a bright ochre colour. The kidneys also have become yellow in a similar manner. These were no doubt cases complicated with redwater.

*Differential Diagnosis.*—The Rhodesian dairy calf disease appears to differ in many respects from other calf diseases described in recent literature. To some extent it recalls the disease investigated in 1901 by Professor Nocard<sup>1</sup> in the south-western parts of Ireland, but the following table shows the various points of difference:—

*White Scour (Nocard).*

Manifests itself by diarrhoea, which usually appears on the second or third day following birth, rarely it makes its appearance on the first day, sometimes as late as the sixth. If the calf shows no signs after the eighth day the farmer thinks his calf will escape (Mettam).

*Rhodesian Disease.*

Diarrhoea not a constant feature. Usually appears between the sixth week and the sixth month.

<sup>1</sup> Paper read by Professor Mettam at the meeting of the National Veterinary Association at Windermere, on 10th September, 1903.

The calf refuses its food.

In some cases of acute white scour there is intense arthritis of one or more joints.

Principal *post-mortem* lesions found in the abdominal cavity.

The lungs show areas of collapse, often small lesions of hæmorrhagic pneumonia (Mettam).

Causal organism said to be one of the fowl cholera type.

Calf feeds even when badly infected.

Arthritis never observed.

In the thoracic cavity.

Typical nodules.

Bipolar staining organism not constantly present.

The septicæmia of calves in the neighbourhood of Utrecht, described by Thommasen,<sup>2</sup> bears features of resemblance to the Rhodesian disease, the following being the principal:—

“The muzzle is dry and the respirations hurried; sometimes there is a dry cough. Though the appetite is not good, still the animal will take milk. Diarrhoea has been noticed.”

The diseases differ, however, in the following features:

*Thommasen's Disease of Utrecht Calves.*

Principal lesions nephritis and urocystitis.

First symptoms observed on the fifth to eighth day, and even as late as four to five weeks.

When made to get up, calves stretch themselves and bend downwards the back and loins.

The thoracic organs were sound.

*Rhodesian Disease.*

Kidneys and bladder not affected in cases not accompanied by redwater.

Symptoms usually delayed till sixth week.

Arch upwards the back and loins.

Lesions chiefly found in thoracic organs.

<sup>2</sup> “Annales de l'Institut Pasteur,” Tome. XI., p. 523, 1897.

The disease known as "septic pleuro-pneumonia," described by Jensen and Poels, and prevalent among calves in Holland, Belgium, Denmark, Prussia, France, Italy, and Russia, is similar to the Rhodesian disease in that the principal lesions are within the chest: "Lung symptoms make their appearance, as noted by the respirations and cough, and by the soreness of the chest to palpation and manipulation generally. A foetid diarrhoea then sets in."

In Jensen's disease, also, there is reason to believe that it is spread by infection and contagion, and it is possible that the causal organism is a facultative parasite present in certain soils and upon forage, obtaining entrance into the body by the respiratory tract, or by the alimentary tract, and in the case of the Salisbury disease by way of the umbilicus at the time of, or shortly after, birth. Jensen's disease, however, differs from the disease under discussion in the following respects:—

<i>Jensen's Pleuro-Pneumonia of Calves.</i>	<i>Rhodesian Disease.</i>
Also affects pigs and kids.	Observed in calves only.
Often the subject dies in a few hours after it is noticed to be ill.	Progress comparatively slow; duration about a week in fatal cases.
The lung is increased in size, hard, and friable, and in appearance is likened to the lesions of contagious pleuro-pneumonia.	Characteristic nodules. (In exceptional cases a resemblance to contagious pleuro-pneumonia has been remarked.)

In the September issue, 1907, of the "Agricultural Journal of the Cape of Good Hope," an article by Mr. William Robertson appeared under the heading of "Pneumo-Enteritis, or Pasteurella Bovis: A Stock Disease of the Eastern Coastal Districts, sometimes confounded with Lamziekte, or Osteomalacia." Accompanying the article were four photographs of calves presenting appearances almost identical with those met with in calves suffering from the Salisbury disease. Another photograph of the lungs of a sheep killed by intravenous inoculation of a culture from an ox, showing the distension of

interlobular spaces with straw-coloured œdema, recalled a condition not unfrequently accompanying the nodular affection of the lungs in Salisbury calves.

A description of a typical outbreak of the calf disease of the Eastern coastal districts coincides in many respects with outbreaks of the Salisbury malady, but the following points would indicate that the maladies are distinct:—

*Disease of Calves in  
Eastern Coastal Dis-  
tricts of Cape Colony  
(Robertson).*

œdema of lungs.

Total absence of fat in  
the carcase.

Abdominal lesions.

Causal organism (a  
bacillus) isolated.

*Rhodesian Disease.*

Typical lung nodules;  
œdema only occasionally.

Fat scarce, but not en-  
tirely absent.

Abdominal viscera gen-  
erally healthy.

Attempts to isolate  
causal organism not suc-  
cessful.

*Predisposing Influences.*—In Professor A. E. Mettam's paper "On certain Septicæmias and some other Infections of Young Animals," read at the meeting of the National Veterinary Association, held at Windermere on 10th September, 1903, the following statement occurs: "It appears that anything which will injure the natural defences of the body will allow of the entrance of or-organisms which may produce death, and that these organisms are generally harmless when in the lumen of the bowel. . . . There is also considerable evidence in support of the contention that secondary lesions of a septicæmic from which the animals recover are due to the entrance into the body of organisms which are normal inhabitants of the intestines, and which, under ordinary circumstances, thrive there without doing harm to the host. Indeed, it is probable that many members of the intestinal flora are absolutely essential to thorough and efficient digestion in the intestinal tube, and to the normal development of the host. . . . Still, from the know-ledge we have already gained as to the life-history of organisms, we are driven to conclude that, from some cause or condition or other, parasites or saprophytes which are ordinarily harmless may produce varieties which may give rise to serious lesions."

Following this supposition, it might be suggested that calves born on the scene of previous outbreaks of the disease under consideration admit into the body an organism which, in ordinary circumstances, produces no pathogenic effects, but that, given some conditions capable of injuring or weakening the natural defences of the body, this specific organism is no longer held in check, and is then capable of exerting its noxious properties.

The manner in which the organism gains entrance into the body has not yet been determined, but there is reason to believe that the chief means of infection is through the uncitrised umbilicus. The principal evidence in favour of this supposition is the favourable results which have followed careful attention to the umbilicus at the time of birth. Further, in a few cases, abscesses have been met with in this situation.

In a report to the Chief Veterinary Surgeon concerning the 1906 outbreak, the following statement occurs: "Of the forty calves there is not one which can safely be described as unaffected, but I would draw your attention to the fact that there are two calves which have not shown symptoms of the disease up to the present, and these are so obviously in better health than their fellows that the cattle inspector was able, without trouble, to point them out to me when asked to do so as a test. These animals, having been born on muddy days, have had their navel-strings ligatured, and, on the owner's own admission, these two only have received this treatment."

Up to the present, however, there is no evidence to exclude the other possible methods of infection; and, since the sick calf contaminates its surroundings with discharges from its nose and mouth and with its dung, there would appear to be every possibility of organisms being inhaled or ingested. The chief evidence in favour of the theory that the organism is admitted into the body and remains there without producing pathogenic effects is met with in those rare cases where the animals have escaped the disease during the period of life when it usually makes its appearance (*i.e.*, from six weeks to six months), but have developed symptoms when as old as nine months when the victims of redwater.

Further evidence in favour of this theory lies in the following incident. A dairyman, on whose dairy the disease was rampant, particularly wished to save two

calves from valuable Jersey cows, and a few days after birth removed them to a farm a few miles from town, where the disease had never occurred. These calves were carefully housed and tended, but six weeks after removal one died with typical symptoms of the disease. Its lungs were studded with the characteristic nodules.

The circumstances which tend to reduce the natural defences of the calf may be one or more of the following:

(1) Inclement weather. The disease, as a rule, appears during the months of January, February and March, when the rains are at their worst. The last outbreak occurred during October, just before the rainy season set in, when the calves suffered from the intense heat. At this time, too, there was very little grazing for the cows, and the calves suffered from want of milk.

(2) Dietetic errors. In this country the dairyman has to contend with a great many difficulties in feeding his calves. In the first place, his cows are only average milkers, and if the calf takes as much milk as is really necessary for its development there is little over for dairy purposes. The custom therefore is to allow the calf to take, morning and evening, as much as is left after the cow has been milked. Attempts have been made to foster the calves from the milch cows upon inferior cows or those used for breeding beef or trek animals. This is not always possible, and, in addition, it is generally held that in this country a cow will not "drop her milk" without her calf. The idea has always been met with ridicule by experts, but it would appear to be true in the case of badly-bred or native cows which have previously suckled a calf. Moreover, the native milkers, prompted by superstition or laziness, if set to milk a calfless cow do so in a half-hearted manner, and the yield of milk quickly ceases. Again, in Rhodesia, the prohibitive prices of codliver oil, linseed, calf-meal, and other fat substitutes render artificial feeding extremely expensive if not impracticable.

(3) A low state of health, the result of keeping animals penned up in small and insanitary calf-kraals, often devoid of a roof, and knee-deep in mud.

(4) Redwater. As has been said before, bovine malaria is endemic to the Salisbury district, and every calf born and allowed to run in this district is subject to redwater infection from the time of birth. That this is so

has been amply proved by the results following the inoculation of newly imported cattle arriving from non-redwater areas of the Cape Colony with blood from Commonage calves never noticed to be sick. Several of such inoculated animals have died, and piroplasmosis has been evident on microscopic examination of the blood of every animal so treated.

During the past two years the association between the lung sickness and redwater has been very marked. It was especially noticeable during the 1906 outbreak, when attention was drawn to the fact by the occurrence of severe hæmoglobinuria in several of the calves suffering from the lung disease. This is the outbreak previously referred to as occurring among calves newly liberated and allowed to run on the Commonage after months of confinement in a small kraal on the dairy premises. It should be particularly mentioned that during this time these calves were systematically dipped—a very important feature, since kraaled animals are liable to become almost as badly infested with ticks as animals allowed to run. Experience of African coast fever has demonstrated how a tick-borne disease will linger in kraals and calf-pens longer than in other places, no doubt because ticks find therein exceptionally favourable opportunities for engorging and hiding during the progress of their life cycle. Possibly, therefore, the calves in question, being submitted to a sudden gross infection, suffered more severely from redwater than animals constantly exposed from birth, which contract the disease gradually without showing signs of sickness.

The exceptional occurrence of the lung disease in nine-months-old calves, simultaneously with acute and newly-contracted piroplasmosis, suggested a very close association between the two diseases.

*Treatment.*—The treatment of this disease has offered exceptional difficulties, by reason of the numerous complications with which it is generally associated, so that it has been found necessary to first treat those symptoms which predominate in each case. For example, where a calf shows marked symptoms of redwater it has been advisable to administer a solution of 500 cgm. of methyl-dinatium-arsenate dissolved in 5 cc. of distilled water. Experience has proved this agent to be particularly valuable in both redwater and equine piroplasmosis. The

solution is injected once daily for two or three days, direct into the jugular vein—a method well tolerated, and having the advantage of avoiding the very serious abscesses and sloughs which often follow the subcutaneous exhibition of the drug.

Cases complicated by diarrhœa and dysentery have been treated with an emulsion composed of a purgative, antacid, and disinfectant. Creosote in five-minim doses has been found a valuable intestinal antiseptic in such cases.

Of the many agents tried in the treatment of the lung disease itself, a proprietary article known as "Tallianine" has been followed by the best results. This drug is said to be obtained by the action of ozone upon a terpene-bearing volatile oil, the process being stopped at a point when the resulting product is capable of evolving four times its own volume of ozone. This product is administered by intravenous injection, usually into the jugular, and is said to provoke an abundant leucocytosis.

In dealing with all outbreaks, the first endeavour has been to locate the infected area and to submit it to most vigorous disinfection. All the fittings and animals on the dairy have been carefully disinfected, while the cows and calves have been regularly dipped or sprayed with arsenical dips. A few drops of izal have been regularly added to the water in the drinking troughs, and it has been found that when once the animals become accustomed to it they show no disinclination to drink.

Dairymen have been carefully instructed in the usual hygienic precautions necessary for the maintenance of health, not only of their stock, but also of the consumers of the milk, but it must be admitted that these precautions are very incompletely carried out. The washing of the cows' udders with a disinfectant before allowing the calves to suck and the disinfection and ligaturing of the navel at the time of birth have been recommended, and when conscientiously carried out have been followed by a very satisfactory reduction in the number of cases.

With a class of somewhat indifferent and self-satisfied dairymen to deal with, with filthy and ill-constructed dairies to work in, and with native labour to depend upon, it is not surprising that the efforts of the Veterinary Department have been attended with only partial success

## **The Cattle Industry in Rhodesia.**

*(Continued.)*

By J. CAMERON.

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In breeding cattle the time at which calves are brought forth should be held under control. The natural season in every county is the period of the year when the greatest abundance of food is still in front—that is the spring time or, in this country, the beginning of the rainy season.

In order that calves shall be dropped, say, in October, November and December, the bulls should be put to the cows in January and remain in the herd for a definite period—not later than the middle of March.

But in addition to this there are many essential details of management that must be carried out before satisfactory results can be secured.

It is of the utmost importance to see that the cows have been dry for a certain period before calving; in breeding-stock this period should not be less than three months, and in dairy cows that are well fed at least two months. This is necessary on the understanding that the cow is expected to bear a calf annually.

It is a very great strain upon the system of a cow which is milked or suckled right up to the time of calving, to be called upon to supply milk externally and at the same time to nourish a nearly full-grown calf carried within her.

But herein nature makes compensation, the law of self-preservation coming into force. The cow will either yield a poor supply of milk after calving, or the reproductive desires will cease to act for a time; probably both states of affairs will follow.

It is a remarkable fact and one that has frequently been observed, that native-bred cows which have never been under any but simple veldt conditions, will actually wean their calves themselves. When the veldt becomes so poor and dry that they are sufficiently taxed in maintaining themselves, they will refuse to allow their calves to suckle them any longer.

Now, while this characteristic may be met with in cows that have been bred in a semi-natural state, it is otherwise with cows which, for a long period, have been bred and reared under artificial conditions. With cows under the

care of man, the natural instincts of self-preservation have been obliterated and they will allow their calves to suckle without hindrance, indefinitely, however much it may be to their detriment in sapping their vitality and reproductive power. In the case of a native cow calving under adverse conditions, such as in a starvation period near the end of the dry season, she will not take to the calf, but will allow it to die. On the other hand, a cow of an improved breed, under similar conditions, will allow the calf to suckle her until she is so reduced that she may actually die and her calf also.

Thus when crossing native cows with any imported pure breed, it is essential that the progeny, when in turn they become suitable for breeding, should be attended to and looked after in the way of food more carefully than were the cows from which they are bred.

The healthy reproductive power of crosses of any improved breed can only be maintained by steadily combating these adverse conditions under which they are far more helpless than their native parents. The weaning of calves and a supply of hay for the worst of the dry season are both essential before cows can reasonably be expected to produce a calf every year.

It not infrequently happens in this country that more direct causes contribute largely to infertility—cows missing being in calf.

Only a certain number of cows should be allotted to one bull. Under veldt conditions and running together for the limited period previously mentioned the number of cows to one bull should not go beyond 40 or 50.

Where the conditions are such that the bull is kept separate and highly fed, and the cows brought to the bull singly when in season the number could be doubled to 80 or 100.

Not a little disappointment has often been experienced in this country with the behaviour of pure-bred bulls, and the way they thrive in comparison with native stock.

It is too often overlooked that just as they have been artificially bred up to superiority over native breeds in substance and weight at a certain age, so much artificial arrangements must be made towards their standard of living as will combat the tendency to fall away and degenerate.

The same thing applies to all the improved breeds that have either been bred in or imported into the country, whether male or female.

Nothing has been more clearly proved by experience than that improved breeds never do well when run on the veldt herded along with native cattle.

While weakness on the part of improved stock holding their own with native cattle is unfortunate, yet in the circumstances of the country lending facilities for cattle keeping, it cannot be regarded as anything more than a slight inconvenience.

The alternative is separating the classes of animals having different habits by means of fenced paddocks.

There is perhaps no item in the outlay of farming capital that carries with it more beneficial or better paying results than what is incurred in fencing. The advantages accruing to fenced paddocks are both direct and indirect.

Facilities are given for keeping different classes of animals separate, and mating certain bulls with certain cows selected or otherwise.

Animals thrive better when settled on a pasture, moving only at their own will instead of being hustled from place to place in a mob.

The security that fencing affords against incroachments of disease is regarded by stock owners as being of the most substantial kind, more particularly in stopping the spread of African Coast Fever. There is no recorded instance of African Coast Fever ever having crossed a fence, and this immunity given to valuable stocks should stir every farmer in making fencing his first outlook.

But improvement in the quality of the pasture itself is a feature that has been manifested in the most obvious and most striking manner in every instance where the system of fenced paddocks for cattle has been adopted.

In the matter of fencing it is not incumbent upon farmers that they go the length of enclosing a whole farm with a first-class fence at a cost of £40 per mile.

A more serviceable method to pursue is enclosing paddocks of sufficient size calculated to maintain a certain number of animals. For breeding stock 50 head are sufficient for grazing together in one lot, and paddocks should be of a size estimated to feed that number. Much would depend on the fertility of the soil and the nature of the pasture, but about 200 acres is large enough. It

is better policy to increase the number of paddocks and shift cattle from one to another rather than have a wide area in only one.

The cost of fencing is held out as the greatest drawback to its adoption, but in this matter great misconception exists as to what a fence needs to be, and how it can be erected in a way that is efficient and wholly serviceable for the purpose.

Three barbed wires have been proved ample for enclosing cattle, costing £11 per mile for the wire.

In most cases there is no necessity for purchasing iron standards at a cost of about £17 per mile since the wood on the farm or from anywhere within a reasonable distance can be utilised much more cheaply.

The idea that poles made of native wood last only a very short time in the ground is well founded only because no treatment has been used improving the lasting power of these native poles.

When poles are cut when the sap is down, that is about June, and thereafter heated to a very high temperature in an oven built for the purpose, it is found that poles thus treated last an indefinitely long period. Should they last five years in a fence it would be quite satisfactory, since they can be so easily renewed.

Since the idea of grading up stock through introducing pure-bred bulls has been put in practice and is being pursued all over the country, it cannot be too strongly urged that success in that line can only be relied upon through exercising the facilities afforded for selection in breeding that offer themselves in fencing.

## WATER.

In many parts of the country there are difficulties in securing a proper supply of water for stock, especially in limited fenced areas.

As a supply of pure water is essential for maintaining continued health among stock, it will be found as the numbers of well-bred animals increase, that it will be more economical and satisfactory to have either water laid on or else wells sunk in every paddock.

Muddy and stagnant pools on the veldt, or in rivers that are almost dried up, are most objectionable, and often disorder the health of animals that are forced to drink such water.

There is nothing in the way of promoting the industry of cattle raising deserving of more encouragement and support than the introduction of machine boring drills for the purpose of securing an adequate and fresh supply of water to farms.

Food, water and shelter having been provided for, it lies against the farmer to make the very best use of the opportunities thus furnished.

Farms vary much in their capabilities for stock raising. It is the farmer's business to estimate what class of stock his particular farm is best suited for, and thereafter outline for himself what particular line of cattle farming he means to pursue, whether dairying, breeding, or grazing and fattening, or perhaps part of each.

(To be continued.)

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### **Cattle Breeds—Aberdeen Angus.**

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The recent history of Aberdeen-Angus cattle has been made the subject of a pamphlet written by Mr. Jas. R. Barclay, a copy of which has reached us from the publishers—the Banffshire Journal Office.

A few extracts may prove interesting and useful to the farmers in this country.

After stating that the breed dates back into the distant past, while the Polled Cattle Society has existed for only twenty-five years, the writer proceeds:—

“Within a space of little more than thirty years the native cattle of Angus and Aberdeen have spread from their northern homes; and as the result of many hard-fought battles and triumphant victories have gained for themselves a leading place on the ranches of Canada and the United States. Australia and New Zealand have learned by practical experience some of the qualities of the breed; in the estancias of Argentine and on the veldts of South Africa the native cattle of the north-east of Scotland may be found grazing and echoing back to the old country fresh laurels, as they continue to press forward into a still more prominent position as the greatest beef-producing race of cattle in the world. . . .

"In 1878 there was held at Paris the great International Exhibition, at which so convincing proof was provided of the merits of the breed. . . .

"Across the Straits of Dover were sent sixteen animals . . . to these sixteen animals that faced the judges at Paris how much of the world-wide reputation of the breed is due!

"It would be hard to say, but the years immediately following saw great strides of progress on the part of the breed. And it was little wonder for the triumph of the breed was complete.

"Both the prize for the best group of foreign cattle and that for the best beef-producing animals were awarded to the breed. . . ."

### ACROSS THE ATLANTIC.

"The remarkable growth of the breed in the United States and in Canada is one of the brightest pages in the history of Aberdeen-Angus breeding, and to trace their gradual development in these great agricultural countries is only to record one vindication after another of the merits of this breed of cattle both as rustlers on the prairie ranches and as early finishers in the feeding byre.

"The striking spread of the breed in America is all the more wonderful when there are recalled the obstacles that had to be overcome and the deeply-rooted prejudices that had to be removed before the breed began even to get a chance to work out its own salvation in its new home.

"Around the birth of the breed in America there was set up an almost impenetrable barrier of prejudice; and though many of the bars of this barrier have with the lapse of time been triumphantly removed, something yet remains to be done to enforce the merits of the breed. To begin with, Americans had never been accustomed to the black colour except in the case of their native scrubs; and there can be easily imagined how the association of colour would militate against the interests of an unknown and hitherto untried breed. . . .

"And now, after less than thirty years' competition with other breeds of cattle, we find one of the leading ranchmen in America making the statement: 'It is common knowledge that no breed has grown in popular favour so rapidly in recent years as the Angus, which is due in

a large measure to the phenomenal feats of the breed in the production of champion steers and feed lot specimens of the best type and quality.'

"But great as was the prejudice against the Aberdeen-Angus breed in the early days of its existence in America, there was one important point in its favour, and that was that it was hornless. Statistics show that not less than 200 persons in the United States are each year killed or seriously injured by cattle horns, and that by the same means at least one hundred thousand cattle and other animals of the farm are killed, while three-fourths of the tremendous loss by abortion has been traced as having been caused by the goring of horned cattle. . . .

"The appearance of a great beefing breed without horns could not, therefore, fail to give rise to at least curiosity on the part of American shippers.

"With a few years' trial this curiosity gave place to deeper conviction as to the suitability of the Aberdeen-Angus for ranching purposes, and now it can be said without the slightest exaggeration that the breed has sustained itself with great credit in all the different conditions of food and climate to which it has been subjected. The cattle have thriven well both upon the scanty herbage of the ranch and on the luxuriant pastures of the fertile farms, and have given ample satisfaction to breeders and feeders, both on the storm-swept plains of the north and on the sunny fields of the south. It has been noted in a mixed herd in America that the Aberdeen-Angus were, when the storms of winter began to blow, the last to leave the fields for the shelter of the barn, and the first to seek the open again when the storm had blown past. The hardy character of the breed is one of its chief recommendations breeders put forward on its behalf, and its great adaptability to changes of climate has been well established during the past years."

### CROSSING WITH NATIVE CATTLE.

A visitor thus writes in 1876 of the importation of three Aberdeen-Angus bulls to Mr. Grant's farm in Kansas:—

"Mr. Grant is crossing the native cattle with polled bulls, and it is announced that he has already had 800 calves after them. These cross calves are declared to be superior to any of their age ever seen in the quarter."

Three years later it was reported from Kansas that "no animals are better adapted for our western prairies than our black doddies."

"I saw good proof of this . . . . I attended the late George Grant's sale at Victoria, and there I saw the qualities of his stock fairly tested in the crosses from his Texan cows, the get of both shorthorn and polled bulls. The cross from the latter was decidedly the best; they were short-legged, big in their hearts, and had a general healthy bloom about them that the Shorthorn crosses lacked. The black ones seemed at home; the others did not.

"I bought a hundred of the three-year-old steers, equally divided as to blood. I kept them over last winter, and the Polled crosses did the best, standing the winter far better than the Shorthorn crosses.

"Their feed was corn stalks and prairie hay. At George Grant's they had to provide for themselves during the winter, as it is short buffalo grass only that is found in that section. The man in charge of the steers at Victoria told me that in spring the Polled crosses were in good condition, but the Shorthorn crosses from want of artificial food could hardly rise up and walk. Another circumstance of note is that the Polled crosses weighed about 120 lbs. live weight more than the other crosses."

## SPREAD OF THE BREED.

"There are many other countries to which Aberdeen-Angus cattle found their way in the early days. . . . In more recent years South Africa and the Argentine have been affording markets to a certain extent; but breeders are confident that in both these countries, and especially South Africa, the breed will have even a brighter future."

## ABERDEEN-ANGUS CATTLE AS MILKERS.

"The question of the Aberdeen-Angus as a milker has very often been discussed. In its early days in America this was one of the barriers of prejudice that had to be overcome; and though the production of beef has been the main point kept in view the growth of the breed

there could never have been so great if some of the hard things said about Aberdeen-Angus cattle as milkers had been anything like within the mark. As a breed it will stand comparison with any other pure breed that is also recognised as a beef-producing breed. . . .

"But one of the strongest testimonials as to the milking qualifications of the breed as a whole comes from far-off Australia. A trial was carried out in South Australia among the various breeds, when in a most triumphant manner Mr. Moir, an Aberdeenshire emigrant to the colony, publicly vindicated to the full a challenge he had laid down as to the Aberdeen-Angus cattle being the best milkers in the colony. The same gentleman had two cows giving twenty quarts of milk per day for almost three months after calving. . . .

"It will be acknowledged that no better test of the milking properties of any race of cattle could be afforded than the court of appeal provided by the London Dairy Show. Here, against all-comers, including representatives of the purely dairy varieties of cattle, Aberdeen-Angus cattle have been able to add to their laurels. At the Show in 1892 there was exhibited the six-year-old Aberdeen-Angus cow Black Bess, and she won, in addition to other prizes, the first prize in the milking trials. . . .

"It is not contended that every Aberdeen-Angus cow is a milker; but it is contended that placed against any other dual-purpose breed, Aberdeen-Angus cattle will hold their own."

A breed of cattle that has thus forced itself into one of the leading places among the cattle races of the world is not likely to be neglected in Rhodesia. Already several polled bulls (Aberdeen-Angus) have found their way into N.E. Rhodesia. They came through the hardships of the journey scatheless, and are becoming acclimatised more readily than any of the other importations.

The pioneer Polled Angus in the Matopos has left his mark in the most unmistakable manner, showing the merits of the breed for crossing with native cows.

A further consignment has lately been imported by Mr. A. G. Hay, consisting of two Aberdeen-Angus bulls from an old-established herd in Scotland.

The crosses from these with the large breeds in Matabeleland will be observed with great interest.

## Notes on Dairying.

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### FIGURES FROM BETHLEHEM CREAMERY.

By E. F. SHEPPY.

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The genial and well-experienced Manager informed me that 30,000 lbs. butter per month can be made at a cost of  $\frac{1}{2}$ d. per lb. to cover all expenses; and 20,000 at a cost of  $\frac{3}{4}$ d. per lb.

The running expenses just now are £80 per month or, inclusive of packing materials, £100 per month.

A good working profit rule may be based on average of 8s. per cow per month for the season of nine months. Any cow yielding less will not pay a farmer to keep for supplying cream to a creamery, nor will she pay for winter feeding.

A Creamery paying 1s. per lb. for butter fat (or 5d. per lb. for cream) can make a profit of 5d. per lb. on butter fat purchased, by keeping its own pens of pigs and by using all bye-products in feeding them and in making cheeses.

This throws a very different weight on the profit side of working a Creamery, and shareholders may rely on a good return for their money even after the supplier of cream has been paid out a payable price for his cream.

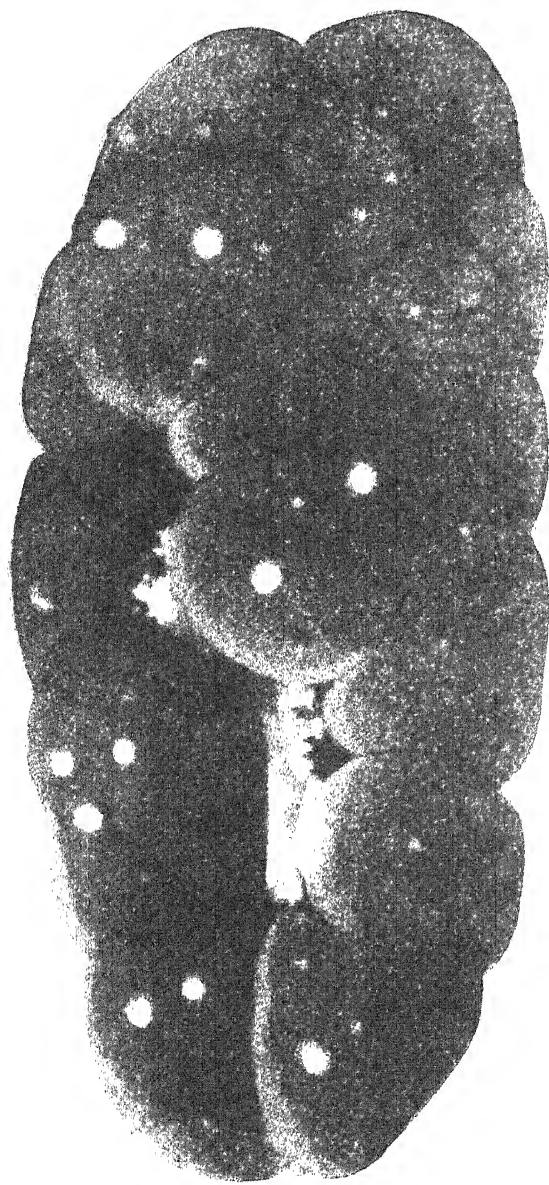
Butter fat from Rhodesian grazing will compare very favourably indeed with any other South African cream for a season, probably averaging 33 per cent. higher for the nine months.

On the supposition that households are small, or cheese-eating as yet confined to few, 10 lb. cheeses are not being made, as is the usual custom in most countries. Instead, 5 lb. square cheeses will be made for the retailer, to cut easily into 1 lb. pieces.

Backsteim cheese, an oversea favourite, will be the first principal product. These cheeses contain 8 per cent. butter fat, 30 per cent. buttermilk, and 62 per cent. of separated milk.

A  $4\frac{1}{2}$  horse-power motor runs all the cooling plant, whilst a  $17\frac{1}{2}$  horse-power boiler is used in driving the machinery in the Creamery, the churns, cooler, scouring plant, etc.





Kidney from case of African Coast Fever showing the areas of Necrosis (Infarcts) in various stages.  
[From Pamphlet by W. Robertson, M.R.C.V.S., issued by the Government of the Cape of Good Hope.]

A Cherry Cooler is here preferred to all other makes.

The boxes, which hold 56 lbs. bulk butter or fifty 1 lb. pats, cost 1s. 2d. each.

It is a £5,000 proposition. Four per cent. is paid to the Bondholders, 10 per cent. to the Shareholders, and farmers get 1s. per lb. for butter fat, with 3d. per lb. held back for emergencies.

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## African Coast Fever.

By LL. E. W. BEVAN, M.R.C.V.S.,  
Government Veterinary Surgeon.

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The following brief summary of the characteristics of the disease known as "African Coast Fever" has been drawn up for the benefit of those recent settlers in Southern Rhodesia who have no practical experience of the disease.

### I. HOW TO DETECT THE DISEASE.

(a) *By Symptoms during Life.*—These are not very distinctive, but the sick animal may evince one or more of the following symptoms: Dullness; loss of condition; running from nose, eyes and mouth; swelling of the glands of the neck and throat and flanks; weakness of the loins, and staggering gait; tendency to charge; constipation followed by diarrhoea; and there may be blood in the fæces. Often the sick animal will feed and chew its cud. Where the lungs are involved there may be distress in breathing.

The first indication is a sudden rise of temperature, which may reach 107° F., but notwithstanding the fever, outward symptoms are rarely met with before the last few days preceding death.

The disease is due to a parasite present in the red cells of the blood during the fever, and diagnosis of the disease can be made from the appearance of the blood when examined under the microscope. (See paragraph 5.) The history of the case is important in helping to arrive at a correct diagnosis, and in preventing the further spread of the disease.

(b) *By Appearances after Death.*—The most important lesions are: Congestion of the glands of the throat and neck; inflammation of the lining of the fourth stomach; infarcts of the kidneys (small yellow or purple spots about the size of a split pea or less, seen after removing the capsule or membrane covering the kidney).

Where the lungs are involved they may be distended with a straw-coloured fluid.

A microscopic parasite is present in the blood.

## 2.—THE CAUSE OF THE DISEASE.

The disease is caused by a special blood parasite. (See photograph.)

## 3.—THE SPREAD OF THE DISEASE.

(a) The disease is only indirectly contagious; a sick animal will not infect another susceptible animal by contact or by any of the excretions or fluids of its body.

(b) The indirect agents of the infection are the nymphal and the adult stages of various ticks (chiefly the so-called "Brown tick").

(c) Only those ticks which in one of their intermediary stages have sucked an infected animal, are capable of transmitting the disease to other oxen.

(d) The infecting agent does not pass through the egg of the tick to the second generation.

(e) The infection on a pasture persists in the ticks which have dropped from sick animals.

(f) It is the tick which engorges on an animal during the time when the parasite is in the blood of the sick animal which carries the disease. (See paragraph 4 (d).)

(g) Two infected ticks are quite sufficient to cause the malady in a susceptible animal. Probably one tick would be sufficient.

(h) Immune cattle cannot infect ticks with African Coast Fever.

(i) The disease is peculiar to bovine animals; animals other than bovine could only carry infection by the merest chance.

(j) Once an infected tick has bitten on an animal, it apparently discharges its poison, since it afterwards fails to infect others.

#### 4.—INCUBATION AND COURSE OF THE DISEASE.

(a) About twelve days elapse between the time when the animal became infected and the first manifestation of the disease, namely, a rise in temperature.

(b) The average period of fever is about thirteen days.

(c) Outward symptoms are rarely met with before the last few days.

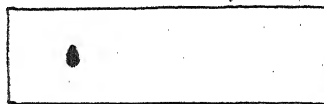
(d) The typical causal parasites are present in the blood of the sick animal about three days after the onset of the fever.

(e) It is the tick which engorges on an animal at the time when the parasite is present in the blood, which carries the disease.

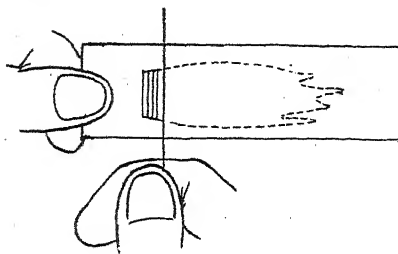
(f) It is necessary for infected ticks to go through a moulting stage before they are again ready to attack a beast: this moulting may take as long as six weeks or two months, varying with climatic conditions.

#### 5.—HOW TO SEND BLOOD FOR DIAGNOSIS.

When a beast is suspected to be suffering from African Coast Fever, blood should be taken in the following manner, and sent with the greatest despatch to the office of the Government Veterinary Surgeon of this district, together with particulars as suggested in paragraph 9.



Drop of blood on glass.



The same spread out into a thin film.

(a) *From a Dead Animal.*—The whole of the ear of the animal may be cut off and wrapped in an antiseptic cloth and sent for examination.

If the time before the specimen can reach the Veterinary Surgeon's office is likely to be long, it is better to collect a small drop of blood from the cut ear, spleen or kidney, on a piece of flat clean glass, in the manner shown in the drawing, so that a thin film is formed. The film should be so thin that it will rapidly dry in the sun. Having wrapped the glass in soft material it is ready for despatch.

(b) *From the Living Animal.*—The hair from the edge of the ear should be clipped off and the ear washed and dried. The edge of the ear should be cut with a clean pair of scissors or knife. After a little blood has escaped a drop should be collected on the glass and treated as in the foregoing paragraph. Several labelled preparations should be sent from each case. The thinner the film the better for examination.

(c) Slides should be taken and sent every few days.

## 6.—HOW TO DETERMINE THE SOURCE OF AN OUTBREAK.

The following points should be borne in mind:—

(a) If the sick animals have been on the farm for about 15 days before becoming sick, it is practically certain that they picked up the disease on the spot.

(b) In the case of animals which have become affected whilst travelling, knowing that the disease may be in the system for about a fortnight before visible symptoms are manifest, the probable region in which the infection was picked up may be estimated.

(c) A second crop of cases may not occur until six weeks or two months after the first case on account of the period occupied by the infected tick in the process of moulting. (See paragraph 4 (f).)

## 7.—PRECAUTIONARY MEASURES.

It should be remembered that fully 95 per cent. of animals affected with African Coast Fever die, and that, up to the present, no successful method of treatment or preventive inoculation has been discovered.

The necessity for the most rigorous precautionary measures is therefore evident.

Even in districts thought to be free from the disease the cattle owner should be on his guard, and should observe the following precautions:—

(a) Careful observation of every sick animal, and notification to the Veterinary Department of any case of an unusual character coming to his knowledge. (See paragraph 9.)

(b) Isolation of all sick and stray animals arriving on the farm.

(c) Erection of a crush and pen for temperature taking and spraying.

(d) Eradication of ticks by systematic dipping or spraying.

SPECIAL precautions should be taken in those districts where the disease is known to exist.

(a) Stray cattle, travelling oxen and all cattle newly arrived on the farm are the principal sources of danger, and should not be allowed to mix with other cattle on the farm until 21 days after arrival. They should be dipped and sprayed on arrival, and again before being allowed to mix with the herd.

(b) For reasons explained in paragraph 8, cattle should not be allowed to graze over the whole farm, but certain areas should be kept free from cattle, one portion being large enough to carry the whole herd indefinitely should necessity arise. In order that this reserved area be not too great a handicap on the grazing capacity of the farm, it should be supplemented by a haystack.

(c) To carry out the scheme defined in paragraph 8 it is advisable to erect a crush and pen to facilitate the taking of temperatures and spraying.

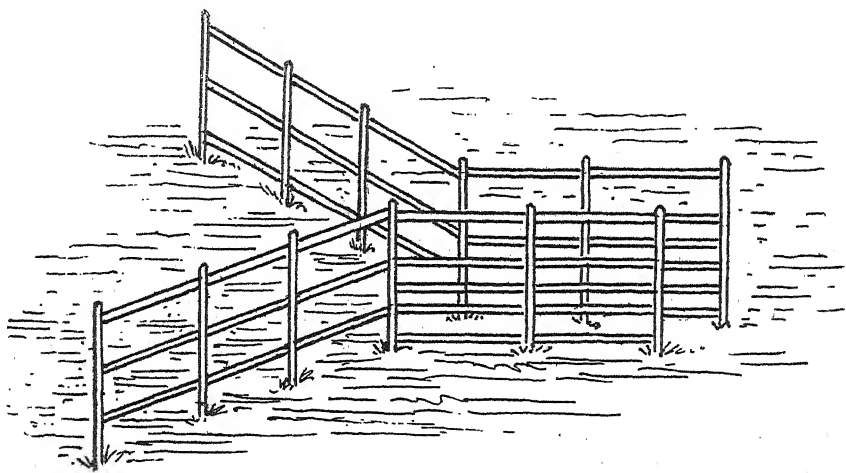
Stock owners should provide themselves with clinical thermometers, glasses for preparation of blood smears, spray pumps, and a quantity of dipping material.

## 8.—“TEMPERATURE CAMP” SYSTEM OF ERADICATION.

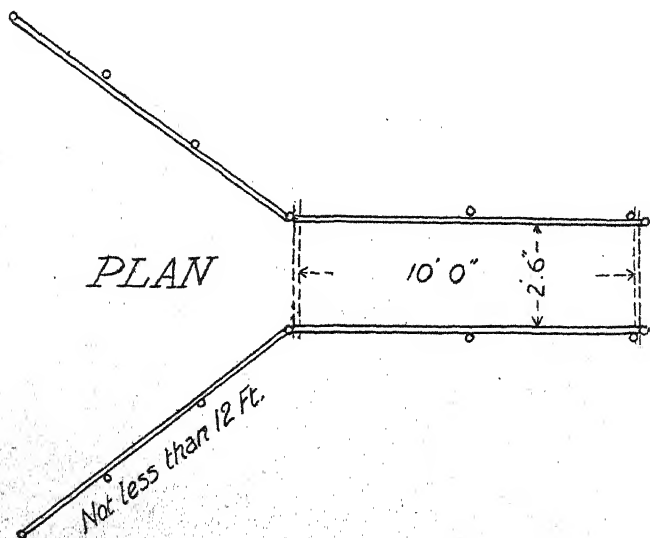
(a) Early-morning temperatures should be taken daily of sick and all in-contact animals (an easy matter if a crush and pen is available).

The normal early-morning temperature of an ox ranges from  $101^{\circ}\text{F.}$  to  $102^{\circ}\text{F.}$  All animals with temperatures above  $103^{\circ}\text{F.}$  should be strictly isolated in a stable or hospital camp.

(b) Where there is little or no doubt that the animal is suffering from African Coast Fever, it is more profitable to destroy it at once. This will limit the number of ticks likely to spread the infection later on. (See paragraphs 3 (f) and 4 (d) (e).)



Sketch of "Cattle Crush and Pen" for taking temperature and spraying.



(c) All in-contact cattle whose temperatures are above suspicion should be sprayed and removed to a small, clean area on the farm (Camp No. 1), reserving a further portion of the clean area for the final distribution of the cattle if further cases occur (Camp No. 2). Whilst on the first clean area temperatures should be taken daily for at least three weeks, allowing for the period of incubation. (Paragraph 4.)

Animals registering  $103^{\circ}$  F. in the early morning should be destroyed or sent back to the isolation camp or infected veldt.

(d) Those animals which have registered a normal early-morning temperature throughout the fortnight should be thoroughly sprayed and passed on to the larger clean area (Camp No. 2).

(e) Animals may show a temporary rise of temperature due to causes other than Coast Fever. These, having been isolated, should not return to the other cattle until a normal temperature has been registered for a week, and then should be sprayed before departure from the isolation camp.

## LAWS RELATING TO AFRICAN COAST FEVER.

African Coast Fever is a scheduled disease under the Animals Diseases Consolidation Ordinance of 1904. Special attention is drawn to the following sections:—

12. (1) Every person who shall have in his possession, or under his charge, or shall knowingly have on any land of which he is the proprietor, any animal infected with any destructive disease, shall keep such animal separate from all animals not so infected, and shall immediately give notice to the occupier of all contiguous lands (not being lands situate within the limits of any town or village) and as soon as possible thereafter shall also give notice to the Magistrate, or any Inspector or Sub-Inspector of Stock, or person specially authorised by the Administrator to carry out the provisions of this Ordinance within the district in which such animal is, or to the nearest Justice of the Peace, or Native Commissioner, that such animal is so infected, and, on failing to act in the manner directed, shall be liable to a penalty of

Twenty Pounds, or to imprisonment with or without hard labour for any period not exceeding three months, in default of payment.

21. Any person who shall wilfully spread any destructive disease, or shall wilfully infect with any such disease any animal belonging to any other person, or shall be found in possession of any hide, skin, or portion of the carcass of any such animal which has died from any such disease as aforesaid, for the purpose of infecting with any such disease the animals belonging to other persons, shall be liable to imprisonment with or without hard labour for a period not exceeding two years.

The movement of all cattle within the provinces of Mashonaland and Matabeleland is strictly prohibited except under certain conditions enumerated under Government Notices No. 188 of 1906; 216 and 217 of 1907; 40 of 1908; 114 of 1908.

These notices are fully reproduced in the Rhodesian Agricultural Journal, and may be seen at the local offices of all officials of the Veterinary Department.

#### 9.—PARTICULARS WHICH SHOULD BE GIVEN IN REPORTING CASES OF SICKNESS.

1. Age, sex, colour, and breed of animal.
2. Where sick. How long in present locality. Place from whence animal came.
3. How long sick, and when death occurred.
4. Symptoms: Temperature; breathing; state of coat; appetite; urine and faeces; any unusual conditions.
5. Post-mortem condition of blood; glands of throat; wind-pipe; lungs; heart; liver; stomach; kidneys; bladder; any unusual condition.

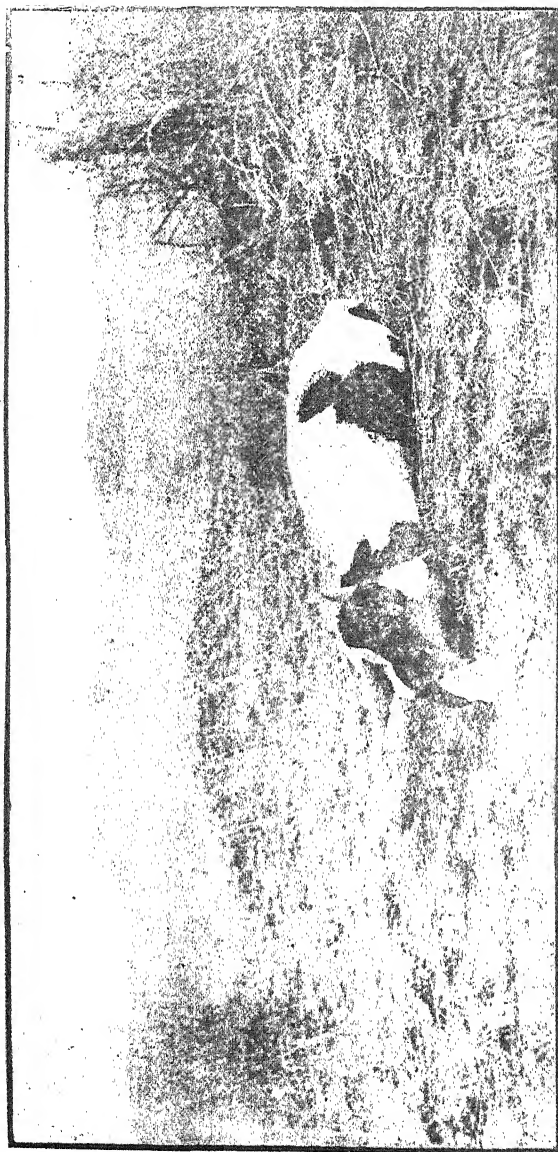
In describing size and colour, compare with some well-known object.

6. Temperature of animal at time when smears were taken, and part of dead animal from which smears were taken.

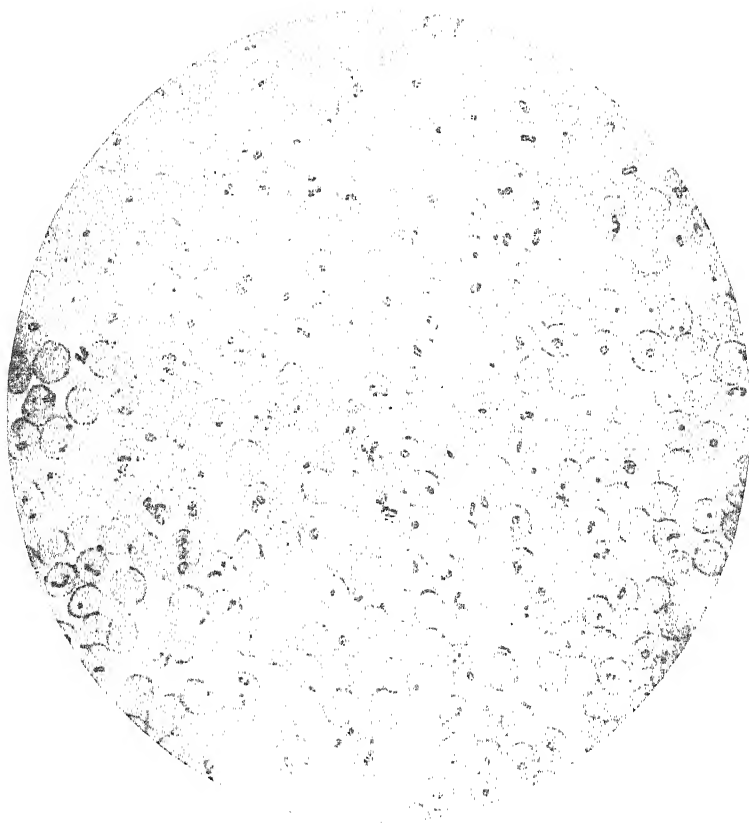
7. Number of animals on the farm. How many sick or dead to date.

8. Treatment and preventive measures adopted.





Animal dead, shewing froth from nostrils. Postmortem shewed extensive lung lesions.



Micro-photograph of typical blood smear of African Coast Fever.  
[From Journal of Comparative Pathology and Therapeutics.]



## Poultry.

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With the view of gaining some definite facts concerning which is the best breed of fowls for laying purposes, a Poultry Club, operating in the Southern Counties of England, has entered upon a competition between different breeds.

The following is the result for the first six months, published in a provincial paper:

### LAYING COMPETITION.

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#### RESULT FOR THE FIRST SIX MONTHS.

Six months have elapsed since the competition promoted by the Utility Poultry Club began. Twenty pens of six hens each hatched last year are taking part in the contest. The total number of eggs laid by each pen for the six months ending March 31st, is as follows:—1, white wyandottes, 532; 2, white wyandottes, 503; 3, white wyandottes, 502; 4, white wyandottes, 466; 5, white wyandottes, 437; 6, white leghorns, 428; 7, white wyandottes, 426; 8, buff rocks, 422; 9, white La Bresse, 371; 10, white wyandottes, 362; 11, white wyandottes, 355; 12, black wyandottes, 344; 13, buff rocks, 329; 14, barred rocks, 327; 15, buff rocks, 321; 16, houdans, 318; 17, white leghorns, 316; 18, white leghorns, 256; 19, partridge wyandottes, 227; 20, white leghorns, 207. The number of eggs laid during March was, as might be expected, considerably larger than that of any previous month. The fourth, second and twelfth pens laid 126, 125 and 121 eggs respectively, while a buff Plymouth rock hen in the eighth pen laid 27 eggs in the 31 days. She had, however, only laid nine eggs during the other five months. Forty-four birds have laid 20 eggs or over during the month. The three highest scores for the six months are 128, 126 and 122 eggs, laid by a white wyandotte and two buff Plymouth rocks. Broodiness has been most prevalent in the La Bresse and partridge wyandottes, and remarkably slight amongst the white and black wyandottes and buff Plymouth rocks.

## **Pigs.**

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In the article appearing in last issue of the Journal describing the Large White Sows on Messrs. Maclaurin Bros.' farm, omission was made to state that the two Yorkshire Sows were bred by Mr. E. F. Sheppey at Mount Pleasant.

This is to be regretted since it is only fair that breeders of first-class stock should get all the credit they deserve.

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## **Agricultural Shows.**

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### TRAVELLING ARRANGEMENTS.

The Cape Government Railways, in conjunction with the Rhodesia and Beira and Mashonaland Railways, are offering special facilities in railway travelling for attending the Shows to be held in Southern Rhodesia during the month of June.

The charge of single fare for the double journey will be made from all Cape Government and Rhodesia Railway Stations.

Tickets will be issued from May 25th to June 19th, inclusive, and will be available up to and including July 31st, 1908.

The dates of the Shows are :

Bulawayo: June 3rd and 4th.

Gwelo: June 11th.

Salisbury: June 26th and 27th.

The B.S.A. Company (at the various Show centres) will provide transport free of charge, and representatives of the Lands Department will accompany farmers and others desirous of seeing any part of the country.

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## **Salisbury Agricultural Show.**

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Exhibitors are reminded that the Entries for the Show, to be held at Salisbury on the 26th and 27th June, 1908, close on 13th June.

Arrangements have been made with the Volunteer authorities for the use of the Volunteer Hall for Show purposes, and also for combining the present Showground with the Drill Hall grounds in order to provide room for the exhibits.

Special railway arrangements have been made whereby all exhibits are charged ordinary rates on the forward journey and returned free to the forwarding station, on production of certificate signed by the Secretary that exhibit is still the bona-fide property of the sender.

Entry forms and further information may be had from the Secretary, Mr. W. H. Williamson, Box 288, Salisbury.

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## Correspondence.

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### FRUIT FLY.

TO THE EDITOR, "AGRICULTURAL JOURNAL."

SIR,—

I notice in your February issue Mr. Weinhold's letter on the use of vinegar as a bait for destroying fruit fly. As he is now away in England perhaps you would like to have the result of my experiments. I must admit that they were very clumsy, and had to be undertaken when my official duties allowed me.

I first tried by placing around a plate of fruit ordinary custard glasses, one with kerosine, one with whisky, one with water, and one with vinegar.

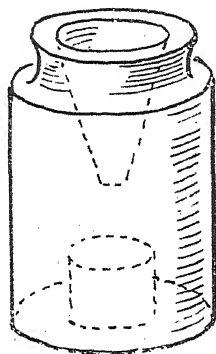
After 24 hours I had two fruit flies in the water, three in the kerosine, four in the whisky and thirteen in the vinegar; this result was more or less maintained throughout, although the vinegar and whisky had to be renewed from time to time.

I came to the conclusion that none of these were really effective as the flies around the fruit did not seem to decrease, and that any flies found in the liquid were accidentally caught.

I then procured a wide-mouthed prune jar, and cut a hole in the metal top; into this I fixed the wide part of a funnel-shaped piece of brown paper with a hole about

$\frac{3}{4}$  inch in the narrow part. I placed some decaying fruit in the jar and screwed on the top. The result was so good that I did not count the flies next morning.

The drawback in this experiment is the non-killing of the flies. I have, therefore, come to the conclusion that vinegar or some decaying fruit should be placed in an inner receptacle and the outer jar should contain kerosine or water covered by kerosine; and as decaying fruit could be used as bait, this would be far cheaper than kerosine or vinegar in tins about the trees.



My experiments were all carried on indoors. I attach a rough sketch of my catcher.—Yours,

T. B. HULLEY.

Umtali, April 4th, 1908.

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TO THE EDITOR, "AGRICULTURAL JOURNAL."


DEAR SIR,—

I have read with much interest Mr. Fred Eyles' article on "Vegetable Fibres in Rhodesia," published in your April number of the "Agricultural Journal," and his attack in same on my figures of jute prices, which you kindly published in your October number.

I must ask you to intrude on your space in your next Journal and publish this letter, which will prove that my figures and statements then made are quite correct.

My statement in the October number was: "The prices during the last twenty years for *ordinary* Jute Fibre have been from £9 to £15 per ton."

Mr. Eyles attempts to ridicule my figures, and states: "The average price (1st Marks) for the last ten years, ending December 31st, 1907, was £15 2s. 6d.," and further on in his article states that "the average price for the last five years ending 31st December, 1907, was about £19 9s., i.e., considerably above the maximum given by your correspondent."

Mr. Eyles has based his figures by his own showing on (1st Marks) Jute; this quality is known to the trade as  quality, and is very much superior to ordinary Jute.


If Mr. Eyles thinks he can grow a crop of Jute, and that it will all turn out (1st Marks), he has, I am afraid, a good deal to learn.

A crop of Jute will give various qualities, and supposing (1st Marks) fetch £15 10s. per ton of 2,240 lbs. d.d. C.I.F. Dundee. This crop will consist of three grades of Jute; the lowest quality, known as cuttings, will fetch £4 per ton; the ordinary, and probably the bulk of the crop, about £12 per ton; and the best (1st Marks), £15 10s. per ton.

Further, Mr. Eyles is basing his figures on the season 1906-7, which was a famine year in Jute, when prices went up 150 per cent., as contracts had to be fulfilled, and these famine prices have very materially increased the average prices.

They may not occur again during the next hundred years, and should not be reckoned with from a farmer's point of view.

Mr. Eyles' statement that the average price for (1st Marks) for last five years was £19 9s. per ton is entirely misleading and incorrect, the average being as follows:

Price of (1st Marks) quality 		
Opening prices.	Highest.	Lowest.
£14 2s.	£18 5s.	£12 5s.

These figures are per courtesy of Messrs. W. F. Souter and Co., Dundee, probably the largest Jute Brokers and Importers in the world.

It must be remembered that these prices are Cost, Insurance and Freight, paid to Dundee, and in press packed bales; the farmer out here would have to reduce

these prices by £2 to cover this cost. He would also have the cost of delivering these bales to his nearest railway station.

I must again warn farmers from trying to grow Jute out here, at a profit; it is ridiculous to think we can beat the Indian in his native country, where he has everything in his favour.

Mr. Eyles appears to think that fibre-growing in Rhodesia is going to give a sudden fortune to every farmer who goes in for it. Well, Mr. Editor, I was a partner in my father's business, Joseph Cookson, Manchester, for ten years before I came out here (four years ago), and one branch of this business was Hemp Importing and Spinning, in which I was particularly interested.

Many thousands of tons of Jute, Yarns, Hemps and Fibres have passed through my hands, and been examined by me; it is one of the most cut businesses in the world, 1 per cent. to 2 per cent. profit being all one could expect to get.

A farmer producing Hemp anywhere in the world has to be a good man to make it pay well. It is no slipshod business, and needs infinitely more looking after than mealies.

I might ask what practical experience Mr. Eyles has had in Hemps and Fibres. We all know nearly every tree and shrub in this country is used by the natives for "intambo," and that therefore it stands to reason that certain plants specially cultivated for fibre making ought to give good fibre here.

Mr. Eyles in his article has made some serious errors when dealing with the other hemps and fibres. With your permission, I will correct a few of these, so that the farmer in Rhodesia may not be misled.

\* No. 1. MANILLA HEMP (*Musa Textilis*). More commonly known as "Abaca," does *not* require a truly typical climate, and, contrary to Mr. Eyles, I believe parts of Rhodesia very suitable for it.

The only country which can grow it successfully is the Phillipine Islands, and it only grows there at a height of three to four thousand feet above sea level on the sides of the volcanic mountains.

It will not grow in the tropical, flat ground and valleys there. It is really a Banana tree, and where the Banana and Plantain will flourish in this country there also I

firmly believe Abaca (Manila Hemp) will grow. Further, it is the simplest fibre in the world to extract; no machinery is used, only a blunt knife and a raw native is necessary.

No. 5. FLAX. Here, again, I entirely disagree with Mr. Eyles, and believe this plant would grow very well indeed in Rhodesia, and on the land from which we get our best mealies. Further, Flax could be grown here either for the fibre or the seed (from which linseed oil is made).

I believe I am correct when I state that Flax was grown out here some seven or eight years ago for its seed, and this seed tested gave 15 per cent. more oil than that from any other country.

No. 7. SUNN HEMP. This fibre is *not* a jute substitute, it being a harsh, coarse, brittle fibre; whereas jute is soft, fine and brittle; the two will not mix at all together.

No. 8. RAMIE. Whatever quantity a farmer has of this to dispose of, he can get rid of it at once at very high prices, especially in America, where it is largely being spun and woven into fine cloth.

There is excellent machinery, I believe, now for degumming it, and the difficulty of weaving and spinning same has long since been overcome by many mills, both in England and America.

Yours faithfully,

J. COOKSON, JUNR.

Brundret, Mazoe, Rhodesia,  
May, 1908.

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TO THE EDITOR, "AGRICULTURAL JOURNAL."

DEAR SIR,—

I noticed in the "Agricultural Journal" of February an illustration of some onions grown at Charter under irrigation.

From the illustration these onions are rather small, and they have a great defect in that the stem is exceptionally large, and forms a hard, dry core right through the centre of the onion to the roots

Although apparently they are a good keeping and cooking onion, the above-mentioned drawback in itself makes them unsuitable for the table.

I have pleasure in sending you under separate cover a sample of two onions grown from my own onion seed. The perfection of these onions has been brought about by myself during my nine years' residence here on the Ulungu, through cross-fertilisation and selection.

I might state that these onions represent a fair average sample, and are by no means the largest.

The seed was sown on the 15th of April, 1907, and the onions were harvested about the 15th September, 1907.

They have been out of the ground, therefore, for over six months, and this alone will speak for their keeping qualities; and I think that if you will try one or both you will agree that for flavour they are unequalled even by the imported ones.

I have sent this sample of onions thinking that it may be of some interest to your readers, and I trust they will arrive in good condition, as they have a long, rough road between here and Feira and Salisbury.

Yours faithfully,

HERBERT JOHNSON.

Ulungu Estate, Feira,  
N. Rhodesia, March 28th, 1908.

[Mr. Johnson is deserving of great credit for his valuable contribution to the vegetable products proved suitable to the climate and conditions of Rhodesia. The two onions sent arrived in good condition, and a photograph of same will be given in next "Journal." Meantime we would suggest that Mr. Johnson send a small sample of seed in order that the qualities of the onion may be made available among larger centres of consumption.—F.D.]

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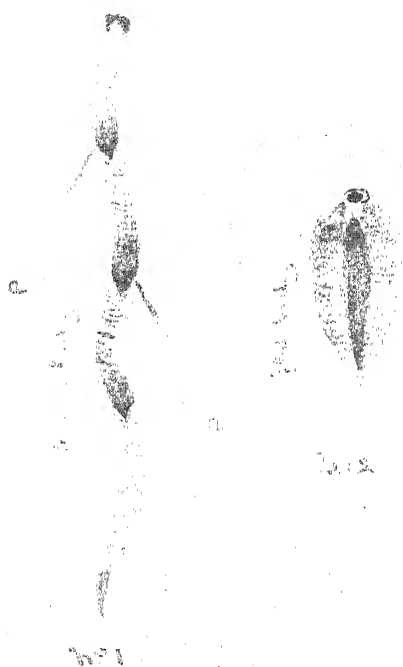
TO THE EDITOR, "AGRICULTURAL JOURNAL."

DEAR SIR,—

I shall esteem it a favour if you will kindly publish the following in the next number of your "Journal":—

It is well known that cattle suffer from various kinds of intestinal worms, but it would appear that this plague has not had the same attention as that bestowed upon it in connection with horses and sheep; thus the following may be of interest.





Intestinal Worms in Cattle.

I have lost cattle lately from this pest, the worms apparently being of two kinds (*vide* illustration).

No. 1 varies in size from one inch to six inches long, of a blood-red colour; inhabiting the lungs chiefly, but is found in most of the other organs, except the interior of the stomach; the majority have what would appear to be young worms attached to them (a a).

No. 2 appears to be exactly similar to the liver-flukes in sheep, and is found in the liver only.

On examination of a dead cow these worms were present together in every case.

The symptoms are as follows: Cow goes off feed; from being fat and looking well it becomes thin and ill-looking with great rapidity. The eye is watery and the eyebrow swollen; the breath is laboured. In some cases a large rash presents itself.

Death in most cases is sudden; in some cases twelve or more hours before death there is a state of coma—almost complete insensibility. The skin is pale.

I shall be greatly obliged if some gentleman with a knowledge of the subject will be good enough to let me know the best treatment and preventive measures for such cases. Any facts concerning the life history of No. 1 worm will also be of great interest.

I am, yours truly,

J. A. BARNES.

Suambali Estate, Fort Jameson,  
March 16th, 1908.

[If Mr. Barnes will send specimens of the worms to the Veterinary Department, Salisbury, every endeavour will be made to identify them and suggest remedies accordingly.—Ed.]

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## Co-operation.

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At a meeting of the Mashonaland Farmers' Association, held on the 14th March, a scheme of co-operation for the sale of mealies was formally adopted.

The details of the scheme are as follows:—

1. CO-OPERATIVE AGENCY.—This may be commenced immediately by a number of farmers and traders agreeing to dispose of all their mealies available for sale through the sole medium of the co-operative agency, and guaranteeing to supply a minimum quantity of not less than 30,000 bags. This quantity may be increased to an unlimited number of bags, and the larger the number the greater the power and possibilities of the Co-operative Agency in ensuring a fair and steady price for mealies.

2. MEMBERSHIP.—Each farmer or trader agreeing as above would be required to forward to the Agency an agreement (copy of which would be supplied him), undertaking to support the Agency and informing them the approximate minimum quantity and approximate date his mealies would be ready for market.

3. AGENTS.—The agents would be required to deal solely with the mealies of the Co-operative Agency and to dispose of them, in either grain or meal, by means of contracts, or direct sales to reliable customers. They would also keep complete records of all transactions, arrange all payments of advances on grain supplied by members and keep bank furnished with regular returns as to stocks held, etc., in order to finance the Agency.

Should grain or produce other than mealies be required by the agents, the Co-operative Agency to have preference, but in the event of members being unable to supply, the agents to be allowed to deal in these circumstances for their own sole benefit. This will also apply to mealies, should the Co-operative Agency supplies or stocks become exhausted.

The business of the Co-operative Agency would not affect the milling business of the agents in regard to any milling contracts or work that they may have, or secure at any time during the continuance of the Co-operative Agency.

4. COMMISSION.—The agents to be allowed  $2\frac{1}{2}$  per cent. commission on all sales, and in cases where meal would be required instead of grain, they would be allowed one bag of 203 lbs. grain for every bag of meal supplied by them.

5. **ADVANCES.**—These would not exceed 50 per cent. on grain delivered, and would be calculated on a basis rate to be fixed by Managing Committee.

6. **BANK CHARGES ON ADVANCES.**—These would be written off at date of settlement by being allocated pro rata to members receiving advances.

7. **INSURANCE AND OTHER CHARGES.**—These would also have to be written off at date of settlement and allocated pro rata.

8. **SETTLEMENT.**—Monthly, of all sales to each date, in pro rata shares, less charges as above. A complete settlement would have to be made at the end of the year. Or alternately, a yearly settlement, which would be complete. By adopting the latter plan, each member, whether supplying in large or small quantities, would benefit in pro rata share by securing the average price of mealies obtaining throughout the year. This plan would also reduce the bank charges to a minimum.

9. **SEED OR SPECIAL MEALIES FOR SALE BY MEMBERS.**—These would be included in sales through medium of Agency, but would not be pooled, each member being allowed to fix his own price thereon and being credited with the full price realised, less the  $2\frac{1}{2}$  per cent. commission.

10. **TERM OF AGENCY.**—For the period of one year, from April 1st, 1908, until March 31st, 1909. Notice of termination of period of Agency to be given three months before date, as above, if necessary, by either side, *i.e.*, the Agents, or Committee representing members.

11. **MANAGEMENT.**—To consist of six members and two agents' representatives; a quorum to be not less than three of the former and one of the latter. This Committee to arrange details, rules, forms of agreements, and to instruct agents from time to time. Also to supervise settlements and to use their discretion in regard to any urgent advances or settlements that may be required by members over and above the ordinary advances.

12. **MARKING OF SACKS.**—This is an important matter, and should be insisted on, in order to ensure only a good quality of mealies being supplied through the Co-operative Agency.

13. AGENTS' STOCKS.—The Co-operative Agency would undertake to take over all the agents' stock of grain at the time of commencing operations at the then market price. This would be necessary to prevent complications in sales.

14. EXISTING CONTRACTS AND TENDERS IN ABEYANCE.—*I.e.*, tenders that may be accepted after commencing Co-operative Agency, but given or secured by the agents previous, to be fulfilled by the Co-operative Agency at the prices agreed to by Committee. Any surplus to be credited to the agents.

15. DETAILS.—Any points not brought up aforesaid we consider will come under the details to be fixed by the Managing Committee.

16. SHRINKAGE.—An allowance of 1 lb. per bag of 203 lbs. be made for loss by shrinkage. The agents to be responsible for any further loss that may take place in weights of mealies stored.

A quantity over and above the stipulated minimum of 30,000 bags, was guaranteed by members present at the meeting; thus ensuring the commencement of the Co-operative Agency.

OBJECTS OF THE AGENCY.—It is desired to again make quite clear that the objects of the Agency are "not in the nature of a combine, or corner, in mealies, for the purpose of raising prices to an exorbitant figure, as the Agency will not purchase any mealies, or sell any, except those provided by members."

The main objects may be summed up in the following :

1. To ensure a fair and steady price for mealies.
2. To co-operate for the mutual benefit of both producer and consumer by providing consumer with mealies, meal, etc., at first cost direct from the producer.
3. To export, if necessary, any surplus mealies that may be apparent, over and above the requirements for home consumption.
4. To further the cause of co-operation, which is for the benefit of all concerned.

TOM PRETORIUS AND CO.,

Agents for the Co-operative Agency.

## Rainfall in Southern Rhodesia for the year ended 31st December, 1907.

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The report of the Statist for the past year contains much valuable information concerning the Rhodesian climate. The following are a few extracts bearing on the rainfall taken from that report:—

“It is to be noted that the period covered by this report, namely, the calendar year 1907, includes the months of January, February and March, *i.e.*, the last three months of the year included in my last report. Owing to this change of period for the annual report, it will be impossible this year to compare the current rainy season with the previous ones, as the report ceases before the termination of the rainy season.

“There have been in operation during the year, or some part thereof, nine barometric, eleven thermometric and thirty-two purely rainfall stations. The total number of rainfall stations is fifty-two.”

### NOTES ON RAINFALL.

“The mean rainfall for twenty-eight stations in Mashonaland which have kept complete records during the year is 45.37 inches, with ninety-eight rainy days. Matabeleland had an average precipitation for sixteen stations of 27.32 inches, with seventy-three rainy days. For these forty-four stations the mean rainfall amounts to 38.81 inches, with eighty-nine rainy days.

“At Helvetia, South Melssetter, 82.97 inches fell on 158 days. This amount is  $15\frac{1}{2}$  inches more than the greatest rainfall hitherto recorded at any station. Ten stations recorded a precipitation of 50 inches and over, namely, Borrowdale, Chishawasha Giant Mine, Helvetia, Inyanga, Police Camp, Marandellas, Melssetter, Progress Farm, Umtali, and York Farm. All these stations are in Mashonaland.

“The largest rainfall recorded in Matabeleland was at Selukwe, where  $47\frac{1}{2}$  inches fell. The least rainfall was reported from Tuli, where 15 inches fell on forty days.

"The rainfall during the calendar year 1907 was greatly in excess of the average. It is noticeable that a heavy rainfall during the latter months of the wet season, 1906-7, was followed by a rainfall also considerably above the average during the early months of the 1907-8 season.

"As recorded in last report the month of March was unusually dry in Matabeleland. Another feature of the year was the large number of heavy showers which fell in various parts of the country during the usually dry winter months."

RAINFALL REGISTERED AT THE VARIOUS STATIONS DURING  
THE YEAR ENDED 31ST DECEMBER, 1907.

	Total Rainfall.	Total number of days on which rain fell.		Total Rainfall.	Total number of days on which rain fell.
MASHONALAND.			MASHONALAND—Contd.		
Ayrshire ... ..	31·65	97	Umtali ... ..	52·48	111
Borrowdale ... ..	53·79	102	Utopia, Umtali... ..	49·89	140
Charter ... ..	41·05	88	Giant Mine, Gadzema...	52·41	...
Chilimanzi ... ..	43·61	97	MATABELELAND.		
Chishawasha ... ..	55·00	115	Filabusi... ..	28·78	60
Driefontein ... ..	40·65	101	Fort Rixon ... ..	26·40	75
Enkeldoorn ... ..	38·17	97	Govt. House, Bulawayo	(24·24)	(67)
Exper. Farm, Salisbury	40·74	81	Inyati ... ..	24·02	63
Gutu ... ..	39·63	90	Matopo Mission ... ..	(29·51)	(60)
Gwibi Forest Reserve...	47·12	69	Tegwani ... ..	23·39	51
Hartley ... ..	44·73	98	Westacre ... ..	28·96	53
Hartman Hill ... ..	40·05	72	Belingwe ... ..	(13·35)	(33)
Helvetia, Melsetter ...	82·97	158	Bulawayo ... ..	27·46	108
Inyanga Police Camp ...	51·72	82	Empandini ... ..	18·50	49
Macheke ... ..	39·37	88	Gwanda ... ..	24·20	67
Marandellas ... ..	50·97	117	Gwelo ... ..	25·24	106
Melsetter... ..	58·02	149	Hope Fountain ... ..	28·63	100
Mount Darwin ... ..	37·22	83	Rhodes' Matopo Park...	28·28	67
M'Rewas... ..	49·32	83	Selukwe ... ..	47·56	88
Progress Farm ... ..	52·46	98	Tuli ... ..	15·00	40
Public Gardens, Salisb'ry	39·88	85	Sebungwe ... ..	(18·26)	...
Rusapi ... ..	(44·98)	(107)	Victoria Falls (Police	...	...
Salisbury Hospital ...	40·45	96	Camp) ... ..	29·54	81
Sinoia ... ..	38·49	94	Victoria Falls (Conser-	...	...
Sipolilos ... ..	32·75	75	vator of Forests) ...	33·17	93
Stapleford ... ..	38·96	73			

### GENERAL.

"The mean monthly temperatures were, as a rule, lower than in 1896 owing to the greater amount of rainfall.

"The only stations at which temperatures of over 100 degrees in the screen were recorded were Tuli and the

## GENERAL SUMMARY OF RAINFALL, COVERING FIVE YEARS ENDED 31ST DECEMBER, 1907.

NAME OF STATION.	1903.		1904.		1905.		1906.		1907.		Mean Rainfall.		No. of years observations recorded.
	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	
MASHONALAND.													
Ayrshire Mine	21.11	83	48.39	109	25.60	60	29.47	78	31.65	97	30.80	83	6
Borrowdale	...	...	...	...	25.84	68	36.78	89	53.79	102	38.80	86	3
Charter	...	...	29.75	91	32.65	61	25.17	76	41.05	88	32.15	79	4
Chishawasha	28.98	73	41.32	113	29.55	73	36.33	99	55.00	115	41.09	94	7
Experimental Farm	...	...	...	...	25.65	65	32.43	81	40.74	81	32.94	75	3
Enkeldoorn	...	...	...	...	31.18	48	28.97	67	38.17	97	32.77	70	3
Gulu	...	...	...	...	26.44	65	25.23	76	39.63	90	30.43	77	3
Harley	...	...	34.78	79	24.14	57	30.38	62	44.73	98	35.70	75	5
Hartmann Hill	24.59	51	36.97	71	16.87	47	27.80	64	40.05	72	29.66	58	7
Hospital, Salisbury	25.24	77	32.35	103	26.53	72	30.64	80	40.45	96	32.74	89	10
Macheke	...	...	...	...	30.84	65	31.80	70	39.37	88	34.03	74	3
Marandellas	28.34	72	42.52	91	31.23	57	35.64	87	50.97	117	38.05	79	7
Melsdter	35.96	82	54.78	103	30.99	77	40.90	98	58.02	149	45.77	105	9
Mount Darwin	20.42	50	27.96	76	21.01	51	20.18	58	37.22	83	26.79	63	6
M'Kewa	...	...	...	...	25.86	63	29.35	72	49.32	83	34.84	73	3
Progress Farm	...	...	38.70	82	29.18	63	29.18	76	52.46	98	37.50	81	4
Public Gardens, Salisbury	27.62	69	33.48	97	27.31	61	20.57	86	39.88	85	31.57	80	5
Rusapi	...	...	...	...	33.99	50	28.92	81	44.98	107	35.96	83	3
Sinoia	...	...	31.77	77	25.38	52	26.21	67	38.49	94	30.46	73	4
Sipollo	...	...	...	...	22.32	69	17.80	54	32.75	75	24.29	66	3
Umtali	24.36	75	33.78	106	19.89	79	33.04	99	52.48	111	33.02	93	8
Utopia, Umtali	24.62	86	37.37	118	21.91	90	32.66	110	49.89	140	33.99	105	7
Victoria	24.54	46	25.19	70	14.89	48	30.51	67	37.18	79	27.28	61	9
Westridge, Salisbury	26.26	73	33.00	100	27.70	59	29.45	87	39.30	92	30.66	62	6

GENERAL SUMMARY OF RAINFALL, COVERING FIVE YEARS ENDED 31ST DECEMBER, 1907—Continued.

NAME OF STATION.	1903.		1904.		1905.		1906.		1907.		Mean Rainfall.		No. of years observations recorded.
	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	
MATABELELAND.													
Bulawayo ...	20.84	66	10.30	78	12.32	47	36.78	91	27.46	108	23.53	79	10
Empandeni ...	20.16	53	20.03	38	15.05	32	35.41	72	18.50	49	23.38	49	8
Filabusi ...	...	...	17.95	58	16.58	40	23.39	63	28.78	69	21.67	57	4
Fort Rixon ...	...	...	...	...	14.46	38	20.57	66	26.40	75	20.48	60	3
Government House, Bulawayo...	...	...	...	...	15.28	35	32.13	67	24.24	67	23.88	56	3
Gwanda ...	...	...	...	...	11.10	28	23.56	77	24.29	67	19.68	57	3
Gwelo ...	19.08	68	26.12	57	13.99	46	22.63	75	25.24	106	25.01	75	7
Hope Fountain ...	25.01	60	23.84	77	16.22	54	36.85	89	28.03	100	26.70	80	10
Inyati ...	...	...	22.76	57	18.22	45	28.42	66	24.92	63	23.58	57	4
Matopo Mission ...	...	...	...	...	11.81	41	27.65	90	29.51	69	22.99	67	3
Sebungwe ...	24.63	52	29.53	61	25.39	51	...	...	...	...	26.52	55	3
Selukwe ...	...	...	43.40	71	34.39	60	38.70	82	47.56	88	41.01	75	4
Shiloh ...	...	...	23.33	58	16.01	40	...	...	27.02	62	22.12	53	3
Tegwane ...	19.25	52	18.95	42	10.51	30	29.56	57	23.39	51	19.98	49	6
Tuli ...	11.35	23	19.17	28	10.33	15	14.36	42	15.00	40	14.97	34	8
Westacre ...	22.38	39	15.57	44	14.86	28	34.13	59	28.96	53	23.18	45	5

Victoria Falls. Air temperatures below freezing point were recorded at nine stations in 1907, as against six in 1906.

"The amount of cloud observed at various stations was, as might be expected, greater than in the previous year.

"Throughout the country at all times of the year the prevailing winds were easterly.

"In reference to subsidiary observations at Bulawayo and Salisbury, it is remarkable that the wind velocity at Bulawayo was, on the average, almost double that of Salisbury, whereas in 1906 it was less than 20 per cent. greater.

"*Temperature on Grass.*—The following is the comparative statement of the difference of the mean minima on grass and in the screen four feet above the ground, at Salisbury and Bulawayo for 1906 and 1907:—

	Year.	Jan.	Feb.	Mar.	April.	May.	June.	July.
Salisbury ...	1906	1·9	+1·6*	0·9	4·5	6·7	7·6	7·6
	1907	3·0	1·5	2·7	3·0	5·1	6·2	5·4
Bulawayo ...	1906	2·7	1·3	2·6	7·8	8·6	9·3	7·1
	1907	2·3	1·4	2·5	2·6	5·6	5·9	4·4
		Aug.	Sept.	Oct.	Nov.	Dec.	Year.	
Salisbury ...	1906	7·1	4·6	3·2	2·5	3·2	4·0	
	1907	4·8	4·0	2·6	1·7	1·5	3·4	
Bulawayo ...	1906	7·3	6·8	4·1	3·4	3·1	5·3	
	1907	7·7	4·7	3·4	2·2	0·2	3·5	

\* Sign+ indicates excess of grass temperature over screen temperature.

"As in 1906, the minimum air temperatures at both Salisbury and Bulawayo were invariably above freezing point. A few instances of ground frosts were recorded at both centres.

"Father E. Goetz, of the Bulawayo Observatory, has, during the past year, investigated the past meteorological records in this office, and some new facts have been extracted, one of which is that it appears that the early rains have a different cause from the late rains.

"The former are very much the same over Southern Rhodesia, but the latter are far greater in the East than in the West, and are probably due to cyclones from the Indian Ocean. A curious observation is that between certain hours in the morning at Bulawayo there has been no rain since observations were first recorded."

## Umtali – Outbreak of African Coast Fever.

Extract from report sent by Chief Veterinary Surgeon Sinclair to Secretary for Agriculture:—

“Umtali, 7th May.

“On 13th April I visited Webber’s farm, Quagga’s Hoek, and found two animals, about one and a half years’ old, recovering from some affection; beyond symptoms of high fever neither had shown any evidence of specific disease. When first noticed ill each received a dose of physic, and soon began to recover.

“One small black ox, noticed to be somewhat seedy looking, temperature 103.6, was isolated for further observation.

“Earlier in the month a beast belonging to Mr. Cripps, and running on his farm, was reported ill. Mr. Jarvis could find no symptoms of disease, and examination of blood smears did not reveal any organisms.

“On the 7th a beast died, and another on the 8th. *Post-mortem* by Mr. Jarvis and by Cattle Inspector Harvey of the former showed nothing of Coast Fever; the lesions were those of ordinary Redwater. Examination of blood smears from one of these resulted in Mr. Jarvis’ report of 10th April, forwarding the smear, which I sent to Dr. Theiler.

“On April 1st eight head of cattle were removed from Webber’s farm to Old Umtali. On the 7th one died; a *post-mortem* was made by Mr. Jarvis, but the carcass was too far decomposed for him to pass an opinion as to cause of death.

“The small ox referred to above as isolated at Webber’s farm was examined daily.

Temperature as follows.	a.m.	p.m.
13th ... ..	103.6	
14th ... ..		105
15th ... ..	104	
16th ... ..	103.4	104.5
17th ... ..	105	105.9
18th ... ..	104.6	

Until the 17th the animal showed no serious symptoms except the high temperature; he fed and ruminated almost to the last, and the faeces were normal in colour and

consistence. The fall in temperature on the 16th led me to believe that the animal was recovering from some mild affection and not African Coast Fever.

"The smears taken on the 17th were forwarded to Mr. Bevan, who diagnosed African Coast Fever, and his opinion was subsequently confirmed by Dr. Theiler.

"The beast died on the 19th. *Post-mortem* on the following day showed typical Coast Fever lesions, including a pile of froth in the animal's nostrils.

"On the 16th of April it was reported that some cattle were sick at Franklin's farm, part of Devonshire Estate, and about three miles from Webber's; on examination, four animals showed slightly elevated temperatures, but no distinct symptoms of illness, except an old salted ox, which was very poor, and which the owner informed me had been ailing for several weeks.

"These cattle were regularly examined; all recovered, and no symptoms of illness have occurred amongst the other cattle on the farm.

"On the 26th of April I visited Chisamba's kraal, about three miles from Webber's, and Mr. Wibberley's farm, Raheen. One young beast showed a temperature of 104.8, and on examination of blood smears from it, the *piroplasma parvum* was found to be present.

"On the same day cattle were reported sick on Forest Farm, owner Elkington, and amongst cattle on George's plot, close to Forest farm, both within three miles of Penhalonga. The existence of African Coast Fever at both places has been confirmed microscopically.

"To date there have been ten deaths at Forest farm and two at George's plot; sixty head from the former have been transferred to a sick camp, and nine from the latter. It may be recorded here that on the 20th March a beast belonging to Mr. Van Reit died at Forest farm. *Post-mortem* showed lesions of Redwater, and microscopic examination of blood smears showed *piroplasma bigeminum* only.

"At Mr. Wibberley's farm, the regular temperature of all cattle was begun after the outbreak at Webber's was confirmed. About 27th of April several animals showed high temperatures, one up to 105° F. These, however, suddenly dropped, and no further symptoms of sickness were manifested until to-day, when I received a report

that an ox had died suddenly. The *post-mortem* appearances described suggest African Coast Fever (this diagnosis was confirmed microscopically on 13th).

"On 28th April I visited Manning's and Stokes' cattle on the Portuguese portion of the farm 'Birkley.' One animal had a high temperature, but has since recovered, and no further sickness has been reported.

"On the 3rd May a beast belonging to McKinnon and McLean was reported sick on the Umtali side of the Umtali River, close to the Bartissol Mine. On inspection the following morning I found the animal greatly emaciated, in a state of collapse, and temperature sub-normal. *Post-mortem* showed lesions of ordinary Red-water, which microscopic examination confirmed.

"On the 4th instant the disease was reported amongst 137 trek cattle belonging to Messrs. Barry and English, quarantined to the east of Forest farm; and on the 5th amongst Mr. Myburg's herd, quarantined to the west of Forest farm.

"Government Veterinary Surgeon Sterling reported yesterday that there were several sick among the former and four dead, and five sick at the latter. All the sick cattle have been moved to the sick camp on Forest farm."

Copy of telegram from Chief Veterinary Surgeon at Umtali, dated 24th May, 1908:—

"Six herds are now affected on two separate and well-defined areas. All cattle in the vicinity are under observation, and the work of removal to clean veldt will be started as soon as possible.

"A strong cordon of police has been placed right round the infected areas and at some distance from them, and it is hoped that these measures will prevent the disease spreading from the present infected centres."

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## Epitome of Cattle Inspectors' Returns.

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MARCH, 1908.

### *African Coast Fever.*

No cases. Three infected areas, on which there are no susceptible cattle at large, still exist.

*Glanders.*

The following animals tested with Mallein and found healthy:—Horses, 13; Mules, 6; Donkeys, 65—total, 84.

*Scab.*

Twelve flocks under licence.

*Horsesickness.*

Twelve deaths reported.

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APRIL, 1908.

SALISBURY.

No outbreaks of scheduled disease.

*Tuberculin Test.*

Twenty-nine Heifers tested; no re-action.

*Redwater Inoculation.*

The above Heifers were also successfully inoculated against Redwater.

*Specific Calf Disease.*

Three infected areas.

BULAWAYO.

*Glanders.*

Animals tested with Mallein without re-action:—28 Horses, 73 Mules, 17 Donkeys.

*African Coast Fever.*

No new outbreaks or deaths on infected areas.

UMTALI.

*African Coast Fever.*

See Special Report.

## VICTORIA.

*African Coast Fever.*

No new outbreaks and no deaths on infected areas.

## GWELO, MELSETTER, ENKELDOORN.

These districts are free from contagious disease.

J. M. SINCLAIR,

Chief Veterinary Surgeon.

## Market Rates for Agricultural Produce (Wholesale).

Bulawayo market prices for April supplied by Messrs. Wightman and Co., Produce Merchants:—

Mealies, Yellow and Mixed	12/- to 13/-	Bran	... ..	14/6 to 15/6
" White	... .. 13/- " 13/6	Oat-hay, per 100 lbs.	... ..	9/ " 11/
Kafir Corn, Mixed	... .. 12/6 " 13/-	Potatoes, per bag 150 lbs.	20/ " 22/6	
Nyouti	... .. 9/6 " 10/0	Onions, per bag 120 lbs.	23/6 " 25/6	
Oats (Colonial)	... .. 22/- " 23/6			

*Remarks.*—Mealies in good demand and supply; new season's grain now being received. Kafir Corn, good quality scarce; new grain expected in quantity end of May. Oats, the Colonial market very firm at quotations. Potatoes during early part of month rather scarce, owing to main crop not being quite ready for market; supplies and quality now good. Onions very firm, and likely to advance.

Johannesburg produce market prices as supplied by Hubert Morisse and Co.:—

### WEEKLY MARKET PRICES—April 23rd, 1908.

Barley, per 163 lbs.	... .. 7/9 to 10/6	Lucerne, per 100 lbs.	... .. 5/9 to 7/3
Bran, per 100 lbs. (Colonial)	8/6 " 8/9	Manna	... .. 2/3 " 3/9
Chaff, best, 100 lbs.	... .. 2/6 " 3/9	Transvaal Hay	... .. 7d. " 1/-
" medium	... .. 1/- " 2/3	Oats, per 153 lbs.	... .. 8/6 " 11/6
Eggs, per doz. (Colonial)	1/6 " 2/3	Potatoes, best, per 153 lbs.	10/6 " 12/3
Salt, per bag	... .. 6/- " 6/3	" medium "	7/- " 9/6
Forage (Transvaal)	... .. 4/9 " 5/-	" inferior "	5/6 " 7/-
" (Colonial), best, pr. 100 lbs.	5/- " 6/-	Onions, 120 lbs. (Colonial)	15/6 " 16/6
" med., "	3/9 " 4/6	Turkeys, Cocks	... .. 4/9 " 13/-
S. Meal, best fine	... .. 25/6 " 27/-	" Hens	... .. 3/- " 5/-
Rye	... .. 9/6 " 10/9	Fowls	... .. 1/- " 2/10
Wheat	... .. 16/- " 19/6	Ducks	... .. 1/8 " 2/6
Mealies (Hickory King Whites)	9/3 " 9/9	Geese	... .. 3/3 " 4/6
" (O.R.C. Whites)	9/3 " 9/6	Pigeons	... .. 9d. " 10d.
" (Yellow)	9/- " 9/3	Butter (O.R.C.)	... .. 1/- " 1/3½
Kafir Corn, per 203 lbs.	9/3 " 13/9	Pumpkins, each	... .. 2d. " 5d.
Hay, Sweet (Transvaal)	1/- " 1/3	Beans, per 200 lbs., sound	15/6 " 50/-

LIVE STOCK.—Prime Slaughter Oxen have been scarcer, but are now arriving more freely, and values are a shade lower; values range from £8 to £11 5s., or 30s. to 31s. per 100 lbs. Prime Hamels, Fat Ewes and Lambs all find a ready sale, but inferior qualities are hard to sell. Bastard Ewes (good), 2 to 6 tooth, are worth 12s. to 13s.; there is a very fair demand. Good Kapaters (Boer), are wanted and find a ready sale. Angoras, if good, all sell readily, but it is useless sending up inferior stuff. Pigs are better. prime young Porkers, 60 to 80 lbs., 3½d. to 4d.; large Pigs, 2¾d. to 3¼d. 3-year old Heifers (in calf) are wanted.

## BREEDING STOCK.

Commissions undertaken and orders promptly executed at lowest rates.

Quotations are:—

Slaughter Oxen, prime—£10 to £11 5s.	Kapater Goats—11s. to 19s.
" " medium—£8 to £9 10s.	Mules, large—£15 10s. to £18.
Trek Oxen—£6 10s. to £8 10s.	" " medium—£11 to £15.
Slaughter Cows—£5 to £6 10s.	Horses—£12 10s. to £22 10s.
Tollies—£3 10s. to £4.	Donkeys—£5 to £6 10s.
Milch Cows—£13 to £30.	Heifers, 1½ to 3 years—£5 to £8 10s.
Sheep (Cape)—per lb., 4½d.; 13s. to 20s.	Cows (young Afrikanders)—£8 10s. to £10.
" (Merino)—per lb., 5d.; 13s. to £1 1s.	Pigs, per lb.—2¾d. to 4d.
Slaughter Ewes—9s. to 12s. 6d.	
Lambs, 8s. 6d. to 12s. 6d.	

Kimberley market prices as supplied by James Lawrence and Co.:—

May 8th, 1908.

Bran, per bag 100 lbs. ... 6/9 to 7/6	White Mealie Meal, im-
Barley, per bag 163 lbs. ... 7/6 " 10/-	ported, 203 lbs. guaranteed None
Beans, Sugar, bag 203 lbs. 30/- " 35/-	Oats, per bag 150 lbs. ... 9/- to 10/-
" Kaffir, 203 lbs. ... 10/- " 15/-	Lucerne Hay, per 100 lbs. 4/6 " 5/-
Chaff (Colonial), bale ... 4/6 " 9/6	Onions, per bag 120 lbs. 10/6 " 14/6
" " pressed, 100 lbs 3/- " 3/6	Potatoes, per bag 163 lbs. 10/- " 14/6
Forage, per 100 lbs., good 4/6 " 5/3	" (local) ... 14/- " 19/-
" " inferior 2/6 " 3/6	Tobacco, per lb., good ... 4d. " 7d.
Kaffir Corn, S. African mixed 9/- " 10/6	" " inferior ... 1d. " 6d.
" " White 9/- " 11/-	Wheat, per bag 203 lbs. ... 17/6 " 20/-
Boer Meal (Col.), unsifted 22/6 " 24/6	Butter, per lb., fresh ... 9d. " 1/-
" " sifted 25/6 " 28/6	" " second quality ... 7d " 8d.
Flour (Col.), per bag 100 lbs. 15/- " 16/6	Eggs, per doz. ... 1/3 " 1/9
Yellow Mealies (Col.) 203 lbs. 9/- " 10/-	Ducks, each ... 1/9 " 2/-
White Mealies (Colonial),	Fowls, each ... 10d. " 1/6
hard, 203 lbs. ... 9/- " 10/-	Turkeys " ... 3/- " 6/-
Mixed Mealies ... 8/6 " 9/6	Hams and Bacon, per lb. 4d. " 6d.
White Mealie Meal, 183 lbs. 10/6 " 11/-	Salt, per bag ... 2/9 " 3/9

## SLAUGHTER.

	£	s. d.	£	s. d.		£	s. d.	£	s. d.
Oxen, good, prime, 600	8	0 0	10	10 0	Hamels, 40 to 45 lbs.	0	10 0	0	13 6
lbs. upwards ...	8	0 0	10	10 0	Cape Sheep, good	0	10 0	0	13 6
Cows, good, 450 lbs.	5	10 0	8	0 0	Kapaters, good	0	10 0	0	13 6
upwards ...	5	10 0	8	0 0	Oxen, Trek	6	0 0	7	0 0
Calves ...	4d.	per lb.	dead weight		Riding Horses	10	0 0	25	0 0
Pigs, 100 lbs., clean, 2½d., 3d. lb. live wht.					Draught Horses	10	0 0	22	10 0
Lambs, 30 lbs. ...	0	8 0	0	10 0	Mares	9	0 0	20	0 0

Remarks.—Owing to the Conference the market is in a very unsettled state, as there is an uncertainty regarding railway rates; prices locally have not altered much. White Kaffir Corn very plentiful. Mealies, new season's, now coming in. Best quality Potatoes in demand; good supply of medium. Sound dry Onions firm. Fresh Eggs inquired for. Butter continues plentiful and cheap. Poultry has had slight advance. Over supply of Cabbages and Cauliflowers. Good Fruit finds ready sale. No alteration in Live Stock.

Salisbury market prices for produce, May 19th, 1908, supplied by Messrs. Wightman and Co., produce merchants:—

Mealies ... ..	11/6 to 12/-	Potatoes, per lb. ... ..	1½d to 2d.
Rapoko ... ..	12/ „ 13/-	Monkey Nuts, per 100 lbs.	8/ „ 9/
Munga ... ..	11/ „ 12/-	Beans ... ..	18/ „ 20/
Oat-Forage ... ..	10/ „ 11/-	Onions (Colonial) per lb.	3½d. „ 4d.
Hay ... ..	5/ „ 6/-		

Market was supplied in all lines except Beans, which are very scarce.

Salisbury live stock market prices, May 19th, 1908, supplied by Messrs. Whitfield and Co., auctioneers:—

Slaughter Oxen, per 100 lbs. ...	40/-	Horses ... ..	£25 to £30
Native Oxen ... ..	£7	Camels ... ..	£40
„ trained ... ..	£9 to £10	Sheep (Colonial) ... ..	28/ to 30/
Colonial Oxen ... ..	£12 10/-	„ Native Ewes ... ..	20/
Dairy Cows in full milk ..	£25 to £30	Fowls (Colonial) ... ..	3/6
Native Cows ... ..	£8	Ducks ... ..	5/
Donkeys ... ..	£8	Turkeys ... ..	15/
Mules ... ..	£25 to £30		

## **SOUTH AFRICAN STUD BOOK.**

**A** RECORD of all classes of Stock, the object being to encourage the breeding of Thoroughbred Stock and to maintain the purity of breeds, thus enhancing their value to the individual owner and to the country generally.

Applications for Membership and entries of Stock should be addressed :

For Cape Colony to—

J. PIKE, P.O. Box 703, CAPE TOWN.

For Transvaal to—

F. T. NICHOLSON, P.O. Box 134, PRETORIA.

For Orange River Colony—

E. J. MACMILLAN, GOVERNMENT BUILDINGS,

BLOEMFONTEIN.

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J. PIKE,

Secretary South African

Stud Book Association.

## Government Notices.

No. 188 of 1906.

26th July, 1906.

### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.

2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions:

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.

- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (e) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
  - (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.
  - (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
  - (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.
5. The movement of working cattle may be permitted under the following conditions only :—
- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.
  - (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.
6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided :—
- (a) That such movement shall be to nearest available pasturage by the most suitable route.
  - (b) That written consent be obtained in terms of Section 4 (b) hereof.
  - (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.
7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.
8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another

the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.

9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.

10. All veld-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days: provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank:—

For cattle (over six months)	.. .. .	3d. per head.
For horses and mules	.. .. .	3d. ..
For calves (six months and under)	.. .. .	2d. ..
For small stock	.. .. .	½d. ..

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umvutcha, Reigate, Upper Nondwene, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umvutcha.

No. 216 of 1907.

Department of Agriculture,  
Administrator's Office.

Salisbury, 10th October, 1907.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw Sub-section (b), Section 5 of Government Notice No. 188 of 1906, and declare the following to be of full force and effect in lieu thereof:—

Within the said area from private farms and trading stations to any centre of consumption, or to a railway station or siding, or to and from any other farm, or from a mine to a railway station or siding for the purpose of transporting fuel or mining timber, under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed; provided that no permit shall be issued until the person applying for the same shall produce the written consent of the owners, occupiers, or managers of occupied lands proposed to be traversed, and, in the case of native reserves, of the Native Commissioners, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner, and to the satisfaction of the officer issuing the permit; provided further that, in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 217 of 1907.

Department of Agriculture,  
Administrator's Office,

Salisbury, 10th October, 1907.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw as from the 1st October, 1907, the regulations promulgated by Government Notices No. 189 of 1906 and No. 185 of 1907, and declare that the following shall be of full force and effect in lieu thereof from that date within the province of Mashonaland and the fiscal division of Gwelo, as defined by the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which areas are hereby declared to be areas infected with a destructive disease:—

1. The movement of all cattle within the said area is prohibited save and except:—

- (a) On permission granted by an officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within any area of land enclosed by a substantial fence.

- (d) Within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp.
- (e) Within a radius of four miles of any native kraal situate within the boundaries of any native location or reserve, the site of such kraal shall be deemed to be the place where it is situated at the date of publication hereof, and as is further provided.

2. The movement of cattle for slaughter purposes shall be permitted under the written authority of an officer thereto duly authorised, subject to the following terms and conditions :—

- (a) That such cattle are moved by the most suitable route to the centre of consumption. All cattle travelling by road to be under the personal supervision of a responsible white man, or native approved of by the Cattle Inspector.
- (b) That before cattle may enter from a native district not included in any particular group of districts as defined in Section 6 (b) the written permission of owners, occupiers, or managers of all occupied land, and, in the case of native reserves, of the Native Commissioner of the district over which such cattle shall pass to the nearest station, siding, or centre of consumption is obtained ; provided that in the event of such owners, occupiers, managers, or Native Commissioners refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall, on arrival at the centre of consumption, subject to the terms of clause (d) hereof, be immediately taken to the prescribed quarantine area, and there be quarantined and confined, and branded with the letters " V.D." on the near side of the neck under the supervision of a duly authorised officer.
- (d) That all cattle brought into any centre of consumption shall be disinfected by dipping or spraying at the public dipping station before being taken to the quarantine area.
- (e) That all cattle admitted to the quarantine area shall be slaughtered within 21 days of their admission, and only be permitted to leave the area for the purpose of being driven to the abattoir for slaughter. All such cattle shall, after admission to the said area, be considered as likely to be infected with disease, and, if found wandering outside the said area or in possession of any person, may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (f) That intermediate depots, or concentration camps, for slaughter stock may be allowed at centres approved of by the Chief Inspector of Cattle, provided that no such camp shall be situated within less than a radius of five miles of any commonage, town lands, or grazing ground common to any mining camp, railway station or siding.

3. The movement of cattle required for *bona fide* mining, farming, breeding and dairying purposes and for private milk supplies may be permitted on the written authority of a duly authorised officer, subject to the following terms and conditions :—

- (a) That such movement shall take place subject to the conditions set forth in Section 2 (a) and (b).
- (b) That whenever such cattle shall at any place along the route have passed within a radius of less than five miles of an infected area, the cattle shall upon arrival at their destination be effectually isolated from all other cattle on the same land for a period of four weeks.
- (c) That whenever the cattle being removed shall at any portion of the route have passed within native districts where infected areas exist, the consent in writing to such movement be obtained from all owners of cattle on farms adjoining that to which movement takes place ; and in the case of native reserves of the Native Commissioners of the districts ; provided that should such consent be unreasonably withheld by any of the aforesaid persons the Controller of Stock may direct the issue of a permit.

- (d) That such cattle required for breeding and dairying purposes, or for private milk supplies, when moved to within the boundaries of the various commonages, town lands, or of grazing ground common to any mining camp or other centre where cases of African Coast Fever have occurred within 15 months, shall be confined in some enclosed place approved of by the local Cattle Inspector, and, if a case of African Coast Fever occur in such enclosure, shall not be liberated therefrom except in terms of Section 5 hereof, until 15 months after the last occurrence of African Coast Fever within the enclosure in which they are kept, nor shall they be allowed, after liberation, to run upon any of the land specified herein, unless such land has been free from African Coast Fever for a period of 15 months.
- (e) All cattle introduced in terms of the preceding sub-section (d) shall, on arrival, be taken direct to the Government dipping station and there be dipped or sprayed.
- (f) All cattle confined in terms of clause (d), and all calves born within the said enclosures, shall be sprayed every 14 days, as may be directed by the Cattle Inspector.
- (g) No cattle shall be moved from one native district to another unless with the permission of the local Veterinary Officer and the Cattle Inspectors of the districts to and from which such movement takes place.

4. All calves having less than two permanent teeth running within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp or other centres where cases of African Coast Fever have occurred within 15 months of the date of these Regulations, or born thereon after such date, shall be removed to some enclosed place approved of by the local Cattle Inspector, and shall not be liberated or allowed to run at large on such commonage, town lands or common grazing ground until 15 months after the occurrence of the last case of African Coast Fever within the enclosure in which they are confined, or upon such commonage, town lands or common grazing ground.

- (a) No calves shall be permitted to accompany working cattle travelling along the roads mentioned in Section 7, sub-section (c), and all calves born of such working cattle whilst travelling shall not be removed from the place where born.

5. For the purpose of cleansing an area of disease the Controller of Stock may, under the authority of the Administrator and on the advice of the Chief Inspector of Cattle, subject to such conditions as may be stipulated, permit the removal of calves and other cattle to an adjacent clean area.

6. The movement of working cattle other than those specified in Section 7 hereof may be permitted within the following areas and on the terms and conditions hereinafter set forth :—

- (a) Within a maximum radius of 15 miles of any working mine, or mine in course of development, for the purposes of such mine, provided that :—
  - (1) Such cattle shall only be moved under permission of a duly authorised Officer, and shall be dipped every 14 days where a dipping tank is available within such area, or, in the absence of a dipping tank, be thoroughly sprayed with an insecticide.
  - (2) Such permission shall not be granted where it conflicts with any other section of these regulations, or if such movement is considered to be dangerous to other cattle within the 15 mile radius.
- (b) Within the boundaries of the Gwelo and Lomagundi Native Districts, and within and between the boundaries of the following adjoining Native Districts : (1) Salisbury, North and South Mazoe ; (2) Hartley, Charter and Chilimanzi ; (3) M'tokos, M'rewas, Marandellas and Makoni ; (4) Inyanga, Makoni and Umtali (as defined by Government Notice No. 13 of 1899) ; (5) Along the road West of the

Sabi River from Odzi Bridge to Makondo Copper Mine, subject to the following conditions :

- (1) That the movement will be permitted for such period as the Controller of Stock may in his discretion, and on the advice of the Chief Inspector of Cattle, deem expedient, provided that such permission may at any time be withheld or withdrawn without notice.
- (2) That all applications for removal shall be approved of by the Cattle Inspectors of the districts through which the cattle pass.
- (3) Provided that in the event of such Cattle Inspectors refusing to grant permits for the removal of cattle, the Chief Inspector may, on the advice of the local Veterinary Officer, direct the issue, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (4) That all such cattle are dipped every 14 days where a tank is available, or, in the absence of a tank, are thoroughly disinfected by spraying.

7. The movement of "salted" or immune working cattle shall be permitted on the following terms and conditions :—

- (a) That such cattle have been registered and branded under the supervision of the Cattle Inspector with the brand "T.O." on near shoulder and the registration number on near horn, in terms of Section 7, clauses (a) and (b) of Government Notice No. 109 of 1905.
- (b) That the movement of such cattle shall only take place under the written permit of a duly authorised officer and subject to the conditions that they are disinfected by dipping every 14 days, where a dipping tank is available, or, in the absence of a dipping tank, by thorough spraying with an insecticide.
- (c) That movement of such cattle only shall be permitted :—
  - (1) Along the main roads of the Melsetter District.
  - (2) From Umtali to the Makondo Copper Fields.
  - (3) From Melsetter to Umtali.

8. In the event of failure of pasturage or water on land on which cattle are located the movement of such cattle will be permitted, provided :

- (a) That such movement shall be to the nearest available pasturage by the most suitable route.
- (b) That written consent be obtained in terms of Section 2, clause (b) hereof.
- (c) That such movement shall be by permit only of a duly authorised officer and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector of the district.

9. All applications for the removal of cattle under Sections 2, 3 and 8 hereof shall be submitted to, and approved of by, the local Veterinary Officer before being granted.

10. All permits granted under the provisions of these Regulations shall specify the number and brands of cattle, route to be travelled and period allowed, and may define places of outspan, and all other conditions endorsed on such permits by the officer issuing the same shall be strictly observed.

11. All veldt-fed animals within the limits of the various commonages or town lands, or other centre where there is common grazing ground within the districts of Umtali and Melsetter and the scheduled area at Selukwe, upon which public dipping tanks have been established, shall be dipped therein at least once every 14 days ; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

12. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these regulations in respect of any dipping done at a public dipping tank :—

For Horned Cattle (six months old and over)	..	3d. per head.
For Horses and Mules	..	3d. "
For Calves (under six months) and Donkeys	..	2d. "
For Small Stock	..	1d. "

with a minimum charge of 6d. for any number of animals not aggregating such fee under the above tariff.

13. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed : provided that the Inspector may at his discretion carry out such disinfection with the assistance of and at the entire cost of the owner of the animals sprayed, the cost of such disinfecting being payable at the time of spraying.

14. Whenever the owner, occupier, or manager of a farm shall adopt means for cleansing his cattle running thereon, either by spraying or dipping or any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the same farm to cleanse such cattle or any others before permitting them to enter or pass over such an area, and the Native Commissioner of the district in which such farm is situated may enter into an arrangement with the native owners of cattle, to cleanse such cattle at a charge to be mutually agreed upon between the said owner, occupier or manager and the said native owners.

15. Any person contravening the provisions of these regulations shall be liable to the punishments prescribed by the Ordinance, and in cases where no special punishment is prescribed by the said Ordinance to a fine not exceeding £20, or to a period not exceeding three months' imprisonment with or without hard labour in default of payment of any fine inflicted.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

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No. 40 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 20th February, 1908.

#### AFRICAN COAST FEVER.

IT is hereby notified for public information that Government Notice No. 217 of the 10th October, 1907, is hereby amended by extending the provisions of Section 6 thereof to the movement of working cattle in the Native District of Ndanga and that portion of the Victoria Native District lying west of the Popotekwe River and north of the Ndanga Road, provided, however, that such movement shall only take place as between occupied farms and for purposes connected with employment at the Umkondo Mine.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

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No. 66 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 28th March, 1907.

#### AFRICAN COAST FEVER.

NOTWITHSTANDING anything to the contrary by regulation provided, I, under and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," hereby provide as follows:—

No cattle shall be allowed to be at large, or moved about for the purposes of work, or other cause, within the area defined hereunder, unless an Inspector shall be satisfied that the said cattle are immune from the disease known as African Coast Fever, and shall have caused such cattle to be branded with the letters "T O" on the near shoulder.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FYNNE,  
Acting Treasurer.

AREA.

From a point on the Tebekwe River one and a half miles North East of the Wanderer Mine in a straight line to the Wanderer Dam, thence in a straight line to the Sebanga Poort, thence along the top of the Eastern slope of the Poort Hills to a point half a mile west of the Paf Mine, thence to the Lundi River in a straight line, thence in a straight line East to the Victoria Road Drift on the Tebekwe River, and thence up the River to the first named point, situate in the Native District of Selukwe.

No. 67 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury. 19th March, 1908.

AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by Section 5 of the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw that portion of Government Notice No. 94 of 1905 relating to an area set apart for the depasturing and quarantine of slaughter cattle at Selukwe, and declare the undermentioned area to be set apart in lieu thereof:—

A piece of fenced land in extent about 300 acres, situated on the farm Sebanga and adjacent to the Township of Selukwe.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 114 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury. 16th April, 1908.

AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw section 9 of Government Notice No. 217 of 1907, and declare the following to be of full force and effect in lieu thereof:—

Notwithstanding anything to the contrary elsewhere provided, all applications for the removal of cattle under sections 2, 6 and 8 of the Regulations published under Government Notice No. 217 of 1907 shall be submitted to, and approved of, by the local Government Veterinary Surgeon or Cattle Inspector before being granted, except in the native districts of Lomagundi, North and South Mazoe, Mrewas, Marondellas, Makoni, Inyanga, Salisbury, Hartley, Charter, and Chilimanzi, within which districts officers duly authorised to issue permits may authorise such removal without submitting the aforesaid applications to, and obtaining the approval of, the local Veterinary Officer.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 123 of 1908.

Administrator's Office,

Salisbury, 23rd April, 1908.

UNDER and by virtue of the powers conferred on me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby provide as follows :—

1. For the purposes of the more effectual control and supervision of cattle in any infected area the Controller of Stock may direct the branding of any such cattle with a special brand by him selected.

2. Any person who shall refuse or neglect to afford all reasonable facilities for branding cattle as aforesaid shall be liable to a fine not exceeding twenty pounds, and in default of payment to imprisonment with or without hard labour for a period not exceeding three months.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council,

F. J. NEWTON,

Treasurer.

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No. 110 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 16th April, 1908.

#### IMPORTATION OF CATTLE.

UNDER and by virtue of the powers conferred on me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and repeal so much of the Regulations published under Government Notice No. 187, dated the 26th of July, 1906, as relate to the importation of cattle from the Colony of the Cape of Good Hope and the United Kingdom of Great Britain and Ireland, and make the following provisions in lieu thereof :—

1. The importation of cattle may be permitted from the Colony of the Cape of Good Hope and the Orange River Colony on the following terms and conditions :—

- (1) A permit shall be required from the Chief Inspector which may contain such conditions as shall from time to time appear expedient.
- (2) Applications for permission to import shall be in the form "A" attached hereto, and accompanied by a declaration in the annexed form "B."
- (3) The importation of cattle with more than two permanent central incisor teeth shall not be permitted.
- (4) All importations shall be by rail, and for the purposes thereof Bulawayo shall be regarded as the port of entry.
- (5) All cattle imported in terms of these Regulations shall on arrival at Bulawayo, Salisbury, or Umtali be removed to a place of quarantine under the supervision of an Inspector of Cattle, there to be submitted to such examination and tests as the Chief Inspector may direct. If such examination or tests disclose the existence of any destructive disease the cattle shall be immediately destroyed and the carcasses thereof disposed of in such manner as a Government veterinary surgeon may authorise or require. The Chief Inspector may permit of any examination or tests as aforesaid being dispensed with in the case of cattle in transit by rail for any place beyond the boundaries of Southern Rhodesia.
- (6) All expenses or losses incident to quarantine, examination, testing or destruction as aforesaid shall be borne by the owner of the cattle.

2. The importation of cattle from the United Kingdom of Great Britain and Ireland may be permitted under the following terms and conditions:—

(1) Importation shall be through and direct from the coast ports of the Cape Colony, and there shall be a consignment note or other satisfactory evidence that cattle so imported have come direct from Great Britain or Ireland.

(2) The provisions of sub-sections (5) and (6) of section 1 hereof shall apply to importations in terms of this section.

3. No person shall import cattle in terms of these Regulations except for his own use, provided however that permission may be granted to import for others on the applicant disclosing the name of the person or persons for whom he proposes to act.

4. Any person introducing cattle in contravention of these Regulations, or failing to comply with any conditions attached to permits to import, or furnishing applications, declarations, or other necessary documents known to be false in any material particular, or failing to comply with all lawful directions as to quarantine, examination, testing, destruction or disposal of carcases, shall be liable to a fine not exceeding £20 for each animal in respect of which such offence shall have been committed, and in default of payment to imprisonment with or without hard labour for any period not exceeding six months, unless higher or greater penalties shall have been provided for such offences by the "Animals Diseases Consolidation Ordinance, 1904," provided however that the penalties imposed by these Regulations shall not exempt any cattle from destruction in terms of the aforesaid Ordinance.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

#### ANNEXURE "A."

#### APPLICATION FOR CATTLE IMPORTATION PERMIT.

GOVERNMENT NOTICE NO. 110 OF 1908, SECTION 1 (2).

1. Applicant's Name and Address.....
2. Number and Class of Cattle to be imported.....
3. Area or Farm and District where Cattle are at present located.....
4. Area or Farm and District to which Cattle are to be moved.....

Applicant's Signature.....

Date .....

Application .....

Permit No. ....

## ANNEXURE "B."

I.....residing on the farm .....  
in.....do solemnly and sincerely declare that the animals  
enumerated below have been in my possession since birth, and that lung-  
sickness, pleuro-pneumonia or any other contagious or infectious disease has  
not existed amongst any of my cattle or on my farm within the last four years,  
and that to the best of my knowledge and belief such cattle in travelling  
to.....\* station will not come in contact with any  
animals amongst which lungsickness or any other contagious or infectious  
disease has existed during that period.

And I make this solemn declaration conscientiously believing the same to  
be true.

Declared to at..... on this.....day  
of.....before me....., Resident Magistrate  
for the District of .....

Number of Animals.....Bulls.....Heifers.....

Breed.....

Seller's Name and Address.....

Purchaser's Name.....

Place in Southern Rhodesia to which animals are being sent.....

\* Station within the Colony of origin.

No. 124 of 1908.

Department of Agriculture,  
Administrator's Office.

Salisbury, 30th April, 1908.

## IMPORTATION OF CATTLE.

UNDER and by virtue of the powers vested in me by the "Animals  
Diseases Consolidation Ordinance, 1904," I do hereby declare and  
make known that notwithstanding anything to the contrary elsewhere pro-  
vided, the importation of cattle for *bona-fide* slaughter purposes may be per-  
mitted into the Umtali district from the adjoining Portuguese Territory under  
the following terms and conditions:—

1. The importation and disposal of cattle introduced in terms of these  
regulations shall be under the absolute control and direction of the local  
veterinary surgeon or other duly appointed officer, and shall be regulated by  
the requirements of consumption.

2. The importation shall be limited to a fenced enclosure approved of by  
the Controller of Stock, which shall be situated on the Rhodesian side of the  
Anglo-Portuguese frontier line where it passes through the farm "Birkley."

3. Cattle introduced as aforesaid shall be immediately slaughtered, and no  
meat thereof shall be removed without special permission unless it is entirely  
free from skin and ears.

4. The hides of animals slaughtered in the said enclosures shall be immedi-  
ately immersed in an approved insecticide for a period of not less than twelve  
hours, and shall not be removed from the said enclosure unless accompanied  
by a certificate signed by a veterinary surgeon that they have been satisfac-  
torily disinfected and dried.

5. Any person contravening the provisions of these regulations, or the  
instructions or directions of the local veterinary surgeon or other duly author-  
ised official, given in terms of these regulations, shall be liable, in respect of  
each offence, to a penalty not exceeding £20, or, in default of payment, to  
imprisonment, with or without hard labour, for a period not exceeding three  
months, unless where more severe or heavier penalties have, by the aforesaid  
Ordinance, been expressly provided.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 152 of 1908.

Department of Agriculture,  
 Administrator's Office,  
 Salisbury, 21st May, 1908.

### IMPORTATION OF CATTLE FROM NORTH-EASTERN AND NORTH-WESTERN RHODESIA.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel sections 4, 5, and 6 of Government Notice No. 187 of 1906, and declare the following to be in force in lieu thereof :-

1. Cattle may be imported from North-Eastern Rhodesia, provided that :-
  - (a) The permission of the Chief Inspector of Cattle be first had and obtained.
  - (b) All cattle be introduced by way of the port or town of Feira, which is hereby declared a Port of Entry for cattle, and taken to Sipolilo.
  - (c) All cattle shall remain in quarantine at Sipolilo for a period of six weeks from date of arrival.
2. Slaughter cattle may be imported from North-Western Rhodesia, provided that :-
  - (a) The permission of the Chief Inspector of Cattle or of a Government Veterinary Surgeon be first had and obtained.
  - (b) All such cattle shall be conveyed by rail *via* the Victoria Falls, which is hereby declared a Port of Entry for cattle, and be carried to the station or siding nearest to the centre of consumption.
  - (c) On arrival at their destination such cattle shall be subject to the regulations controlling the movement and disposal of slaughter cattle.
3. Cattle for general purposes may be imported from North-Western Rhodesia, provided that :-
  - (a) Such importations shall take place between the 1st April and the 30th September in each year.
  - (b) The permission of the Chief Inspector be first had and obtained.
  - (c) All cattle imported shall be introduced by rail only and *via* the Victoria Falls, and shall be branded before entry with the letters "N.Z." on the near shoulder.
  - (d) All cattle shall on entry be taken to a prescribed area to the north of the Gwaai River, where they shall remain in quarantine for a period of six weeks from the date of their arrival.
  - (e) No cattle shall be removed from the quarantine area until examined by a Government Veterinary Surgeon.
  - (f) All cattle removed from the quarantine area as aforesaid shall be taken direct to their destination and shall not be moved therefrom for a period of twelve months from the date of arrival thereat.
4. Every application for permission to introduce cattle under sections 1 and 3 shall be accompanied by a certificate in the form of Annexure "A" attached to this Notice.
5. Any person found introducing cattle from North-Eastern or North-Western Rhodesia otherwise than in accordance with these regulations or submitting any certificate false in any material particular or refusing or neglecting to submit cattle introduced to proper inspections and tests, or failing to quarantine properly such cattle when introduced, shall be liable to a fine not exceeding £10 for every animal in connection with which the offence complained of is committed, and in default of payment of any fine inflicted to imprisonment with or without hard labour for any period not exceeding three months, and the cattle in regard to which the complaint has been laid and proved may, under the written direction of the Administrator, be destroyed without compensation.

W. H. MILTON,  
 Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FENN,  
 For Treasurer.

## ANNEXURE "A."

I,....., residing on the farm....., in the district of.....in the Territory of North-Eastern or North-Western Rhodesia (as the case may be), do solemnly and sincerely declare that the animals enumerated below have been in my possession for twelve months, or that I purchased them from....., residing in the district of....., in the Territory of North-Eastern or North-Western Rhodesia, on the day of.....(as the facts permit), and that no case of lung-sickness or other contagious disease has existed amongst any of my cattle or on my farm or other cattle with which they have been in contact within the last two years, and that, to the best of my knowledge and belief, such cattle, in travelling to Feira (or Victoria Falls), will not come in contact with any animals amongst which lung sickness or other contagious disease has existed during that period.

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No. 151 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 21st May, 1908.

## REMOVAL OF CATTLE FOR SHOW PURPOSES.

**N**OTWITHSTANDING anything to the contrary contained in the regulations published under Government Notices Nos. 188 of 1906 and 217 of 1907, I, under and by virtue of the powers conferred upon me by the "Animals Diseases Consolidation Ordinance, 1904," do provide as follows:—

1. The movement of cattle for the purposes of exhibition at *bona fide* agricultural shows may be permitted under such conditions as the Chief Inspector may from time to time prescribe.
2. The granting of permits for the purposes aforesaid and the nature of the conditions to be attached thereto shall be at the absolute discretion of the Chief Inspector.
3. Any person contravening the provisions of these regulations, or the conditions attached to permits issued thereunder, shall be liable to a fine not exceeding £20, or in default of payment to imprisonment, with or without hard labour, for a period not exceeding three months.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FYNX,  
For Treasurer.

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No. 268 of 1907.

Department of Agriculture,  
The Treasury,  
Salisbury, 26th December, 1907.

## REMOVAL OF CATTLE FOR SALE.

**N**OTWITHSTANDING anything to the contrary contained in the Regulations published under Government Notices Nos. 188 of 1906 and 217 of 1907, I, under and by virtue of the powers conferred upon me by the "Animals Diseases Consolidation Ordinance, 1904," do hereby provide as follows:—

1. The assembly of cattle for purposes of sale by auction or otherwise may be permitted at such places and under such conditions as the Chief Inspector may from time to time prescribe.
2. The movement of cattle into the province of Mashonaland and the fiscal division of Gwelo from other places in Southern Rhodesia may be permitted under such conditions as the Chief Inspector may from time to time prescribe.

3. The granting of permits for the purposes of Sections 1 and 2 hereof and the nature of the conditions to be attached thereto shall be at the absolute discretion of the Chief Inspector.

4. Any person contravening the provisions of these Regulations or the conditions attached to permits issued thereunder shall be liable to a fine not exceeding £20 or in default of payment to imprisonment with or without hard labour for a period not exceeding three months.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 42 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 28th February, 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904," may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcasses of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

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No. 228 of 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after the 1st November, 1907, the following regulation shall have full force and effect in addition and supplementary to the Regulations proclaimed by me under Government Notice No. 42 of 28th February, 1907.

14. Notwithstanding the provisions of Section 7, the following classes of dogs shall be allowed to go unmuzzled subject to the conditions respectively set forth in each class.

- a. Pointers, Setters, Spaniels, and all such sporting dogs, when being *bona fide* used and at work before the gun, and under the ordinary supervision and control of persons in charge of them, carrying guns for the shooting of game.

- g. Packs of Foxhounds, Harriers or Beagles, duly registered as such before the Resident Magistrate of the District in which their owner or owners reside, when under the ordinary supervision and control of not less than two persons engaged in the chase.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator.

F. J. NEWTON,  
Treasurer.

No. 129 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 7th May, 1908.

### RABIES.

WHEREAS it has been shown to me that it is expedient to take measures to prevent the spread of rabies in the undermentioned district, Now Therefore, under and by virtue of the powers in me vested by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby authorise and direct that all dogs at the kraals to the natives Chiduku and Maveja, and all dogs within a radius of ten miles of such kraals in the native district of Makoni, shall be destroyed by shooting, poisoning or other approved methods, and that the carcasses of all dogs shall be burnt or buried at a depth of not less than three feet below the surface.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FYNX,  
For Treasurer.

No. 133 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 7th May, 1908.

### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby cancel Government Notice No. 211 of 1907 and declare the following to be of full force and effect in lieu thereof :—

1. Until further notice no person shall introduce into this Colony any grape vine, Virginia creeper, or other plant of the family *vitacea* or any fruit or other portion thereof, from any of the following districts of Cape Colony :—

Aberdeen  
Bathurst  
Cathcart.  
Graaff-Reinet.  
Jansenville.  
Komgha.  
Peggie.  
Stockenströöm.  
Uitenhage.

Albany.  
Bedford.  
East London.  
Glen Grey.  
King William's Town.  
Middelburg.  
Queenstown.  
Stutterheim.  
Victoria East.

Alexandra.  
Cradock.  
Fort Beaufort.  
Humansdorp.  
Port Elizabeth.  
Somerset East.  
Tarka.

This regulation shall not, however, apply to grape jam, wine, brandy, vinegar or must.

2. If at any time an inspector shall find any grape vine, Virginia creeper or other plant of the family *vitaceæ*, or any fruit or other portion thereof introduced into this territory in contravention of this regulation, he shall order the same to be immediately removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 236 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 21st November, 1907.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers vested in me by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that, notwithstanding anything to the contrary appearing in Government Notice No. 141 of 1906, and until further notice, the importation into this territory of any tree, shrub, or vegetable, and the fruit, leaves, cuttings, bark or any part thereof whatsoever, except seed, from the Orange River Colony is strictly prohibited.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof introduced into this territory in contravention of this regulation, he shall order the same immediately to be removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stocks from the aforesaid Colony which have been granted under Section 16, Government Notice No. 141 of 1906, shall be and are hereby withdrawn.

Any person guilty of a contravention of these regulations shall be liable to a fine not exceeding £10, or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 237 of 1906.

#### GAME LAW CONSOLIDATION ORDINANCE, 1906: CLOSE SEASON, &c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof:—

#### CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.

2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.<sup>1</sup>

3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned :—

- (a) Oribi, within the magisterial district of Charter.
- (b) Grysbok, within the magisterial district of Bulawayo.
- (c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.
- (d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melsetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C" except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary :—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows :—

On the North and West by the River Zambesi, starting at the point where the Lozenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanyati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaodsa Rivers to the headwaters of the Lozenzi River and thence along the course of the Lozenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaodsa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

#### SCHEDULE

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umzwezwe Bridge, thence along the Umzwezwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 91 of 1907.

#### "GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds :—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glareola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

No. 41 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 20th February, 1908.

GAME LAW CONSOLIDATION ORDINANCE, 1906.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following regulations shall, from date of publication hereof, have full force and effect :—

1. To enable holders of a game licence to hunt game during the close season, the operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 30th April, 1909, on private land within the Magisterial District of Melssetter, subject to the provisions of Section 16 of the Ordinance.
2. Up to the 30th April, 1910, all game within the limits of the Commonage or Townlands of Melssetter shall be strictly protected, and shall not be hunted or destroyed.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 120 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 23rd April, 1908.

GAME LAW CONSOLIDATION ORDINANCE, 1906.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw section 1 of Government Notice No. 237 of 1906, and declare the following to be of force and effect in lieu thereof :—

CLOSE SEASON—CLASS "A."

1. In the several districts of Mashonaland, the close season for game in Class "A" shall be as follows :—
  - (i.) For birds, from 1st October to 30th April in each year.
  - (ii.) For antelope (in Class "A"), from 1st November to 30th April in each year.
2. In the several districts of Matabeleland, the close season for all game in Class "A" shall be from 1st November to 30th April in each year.

PROTECTION OF GAME ON COMMONAGES.

3. Up to 30th April, 1910, all game within the limits of the Commonages or Townlands of Salisbury, Bulawayo, Umtali and Gwelo, shall be strictly protected and shall not be hunted or destroyed.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 9 of 1907.

## NORTH-WESTERN RHODESIA.

WHEREAS there is reason to believe that certain diseases in cattle exist in the Territory of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, and it is therefore expedient to take measures to prevent the spread of such diseases to North-Western Rhodesia.

Now, therefore, under and by virtue of the powers in me vested by Section 2 of His Excellency the High Commissioner's Proclamation, No. 18 of 1906, bearing date the 31st day of July, 1906, I do hereby order and declare and make known as follows:—

1. That Government Notices, No. 2 of 1902, and No. 11 of 1906, are hereby withdrawn, and the following Regulations substituted:
2. The introduction of any bull, ox, cow, heifer or calf or the meat of any such animals, into the Territory of North-Western Rhodesia from the Territories of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, is prohibited until further notice.
3. No person shall introduce into the Territory of North-Western Rhodesia from the Territories aforesaid, any horse, mare, gelding, mule, donkey, sheep, goat or pig, horns or skins, or any kind of vehicle, wagon gear, trek gear, or harness, without having first obtained the special permission in writing of a District Commissioner, Civil Commissioner, or other person thereto authorized by me; and such animals, horses, skins, vehicles, gear, or harness, shall enter the Territory of North-Western Rhodesia at such place, and under such conditions as regards quarantine and disinfection, as shall be ordered by the person issuing such written permission as is above described.
4. Whenever any conditions as to quarantine, isolation, disinfection or otherwise, are imposed, such conditions shall be fulfilled at the sole risk and expense of the owner, consignee, or other person concerned.
5. All live stock imported into the Territory by rail by way of Victoria Falls and Livingstone, shall be inspected at Livingstone Station, and, whenever disinfection is ordered, shall be disinfected at that Station.
6. In the case of live stock consigned to any point on the railway line north of Livingstone Station, the officer authorized to issue the written permission aforesaid shall further order the disinfection of the truck or horse-box in which such stock is being conveyed. Such disinfection shall be carried out at the expense of the owner or consignee of the stock, or other person concerned therein.
7. Consignors and importers of live stock shall give not less than seven days' notice of the arrival of such stock at Livingstone Station. Such notice shall be given to the Civil Commissioner, Livingstone, or to such other official as may hereafter be appointed.

ROBERT CODRINGTON,

Administrator.

By command of His Honour the Administrator,

HENRY RANGELEY,

Acting Secretary.

Administrator's Office,

Livingstone, North-Western Rhodesia,

30th September, 1907.

## Departmental Notices.

### DESTRUCTION OF WILD CARNIVORA, ETC.

It is hereby notified for public information that the Notice issued by this Department, dated 8th June, 1906, offering certain rewards for the destruction of wild carnivora, etc., will, *after 31st March, 1908*, cease and determine, and thereafter rewards will be paid only on the scale and conditions herein set forth.

2. Rewards will be paid as follows:—

For each Lion ... ..	£3	0	0
„ Leopard ... ..	1	0	0
„ Cheetah ... ..	1	0	0
„ Wild Dog ... ..	0	10	0
„ Crocodile, of not less than 3 ft. in length ...	0	10	0

3. Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the district, within three months of the date upon which the animal is killed, on a declaration made in the form of the annexure hereto.

4. In proof of destruction, applicants for rewards will be required to produce and surrender, in the case of Lion, Leopard or Cheetah, the skin with the tail not severed, and in the case of Crocodile or Wild Dog, the unskinned head.

5. The skins and heads of animals for which rewards have been paid shall be the property of the Government, and shall be disposed of in such manner as may be decided on.

E. ROSS TOWNSEND,  
Secretary for Agriculture.

### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

## STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 3s. 6d. per ounce.

## DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

## GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree*.—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

## VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

## PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

## TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	per oz.	
	s.	d.
Turkish, Yenedje, Xanthi, Aya Solouk ... ..	1	6
Turkish, Cavalla ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0

## TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price  $2\frac{1}{2}$ d. per square yard.

## CULTURE OF TOBACCO.

This book, by G. M. Odum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

## PRIZE COMPETITION FOR RHODESIAN GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown during the season 1907-8.

I. For Rhodesian grown leaf from Turkish seed.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over: £75.

2. For Rhodesian grown leaf from American seed and flue cured.

(a) Best crop weighing between one thousand and five thousand pounds: £25.

(b) Best crop weighing five thousand pounds and over: £75.

#### CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.

2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.

3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.

4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.

5. No competitor shall enter for both prizes in the same class.

6. All competing crops shall be the product of the season in which they are entered for competition.

7. Crops can be lodged at one of the Company's warehouses at Salisbury or Bulawayo any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st August.

#### RUST PROOF WHEAT.

A limited quantity of Rust proof seed Wheat has been secured and is now available for being given out to farmers in parcels for trial in Rhodesia.

Applications should be forwarded to the Secretary, Agricultural Department, as early as possible in order that the distribution may be completed in time for sowing this next rainy season.

No charge will be made for the seed, but those receiving it will be required to furnish the Department with a report on its growth together with samples of the grain produced.

## INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

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In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows:—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

## Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

## EXPORT OF SOUTH AFRICAN HAY TO GREAT BRITAIN.

The following wire has been received by His Honour the Administrator from His Excellency the High Commissioner relating to the export of hay from South Africa:

“Johannesburg, April 27th, 1908.

“I have received notification from the Secretary of State for the Colonies that, owing to risk of spread to farm stock in Great Britain of disease known as African Coast Fever through the medium of hay from South Africa, Board of Agriculture are taking steps under Diseases of Animals' Acts, 1894 to 1903, to prevent its importation unless and until they are satisfied that disease has been eradicated from South Africa.

“You should accordingly warn intending shippers that His Majesty's Government will probably take steps to prevent such hay being landed in Great Britain. The Board of Agriculture notifies that its interpretation of the term ‘Hay’ includes all dried fodder plants that have not had their seeds removed, and that term as used in this correspondence is intended to cover oat hay, vetch hay, lucerne hay (Alfalfa), as well as ordinary grass and clover hay.”

## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Messrs. Hart and Co., Parker's Buildings (P.O. Box 898), Cape Town, Advertising Agents for Cape Colony, Transvaal, Orange River Colony, Natal, and Great Britain. J. Kapnek, P.O. Box 91, Salisbury for Rhodesia.

### Farmer's Advertisement.

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**B**REEDER of Dairy Cattle has on hand Young Bull Calves from Cape Cows (Frieslands), £10 each, taken at 8 months.—C. C. Macarthur, Box 284, Salisbury.

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#### FOR SALE.

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20 Half bred yearling Bulls.

20 Half bred yearling Heifers.

These have for sire our imported pedigree Shorthorn Bulls "Dunmore King" and "Loan Star," which were bought from the breeders, Mr. W. T. Malcolm, Dunmore Home Farm, Stirlingshire, and Mr. David Anderson, Loan of Errol Farm, Perthshire.

100 Bullocks from 2 to 3 years old. Suitable for slaughter or trek purposes.

All the above are in first class health and condition. The above opportunity is well worth the attention of farmers desirous of improving their herds.

Particulars: The Manager, A. L. Bruce's Trust, Magomero, Nyasaland.



# THE RHODESIAN AGRICULTURAL JOURNAL

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EDITED BY J. CAMERON.

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## **Editorial.**

At no time in recent history has the attention of economists been directed more persistently than now towards the problems involved in feeding the world's population.

Commercial enterprise is being aroused looking for new sources of food supplies, even although scientific skill combined with capital are being applied to an extent which presses on, increasing the yields of those countries which are already food providers.

Among fresh fields for agricultural development Rhodesia is no longer overlooked. Its merits and capabilities are being inquired into and its products are being taken note of by men having in view taking a commercial interest therein.

The grain products of the country whatever may be their volume are never going to be allowed to become a glut in the market.

Arrangements are all but completed whereby maize can be exported to London and other European markets at rates that will admit growing at a profit in Rhodesia while at the same time competing with other maize producing countries.

Foreseeing the stock producing possibilities, that the increase therein will far more than meet the increase of population it is already in contemplation by capitalists to erect a meat preserving establishment within Rhodesia.

Encouragement is thus given to farmers to go on increasing their acreage together with their stock and to pursue the extension of farming operations in every direction without the fear of bringing down prices with an over supply.

The provincial Shows held at Bulawayo, Gwelo and Salisbury have far more significance than what attaches merely to the winning of prizes.

These shows are an epitome of what the country actually produces. They furnish the material whereon general opinion is built and in some measure they are a gauge of the credit that will be extended in promoting the development of agriculture.

To the broad observer it is not the superlative excellence in any particular exhibit that excites the chief interest, but rather that at this stage of its history the country can produce such a variety of products all capable of unlimited expansion, and visions of vast possibilities creep on the imagination.

Rhodesian farmers are feeling their way in establishing a husbandry for the country, but what it will ultimately be can scarcely yet be defined, since the items embraced are always on the increase.

It is already recognised that the cattle industry will have important consideration under any system of agriculture that may be pursued.

The success of any other branch of farming depends in the greatest degree on keeping stock, the indirect benefits to the farm arising therefrom being utilised in enhancing the fertility of the soil for crop growing.

When cattle are kept at all it is a loss not to keep the best that the conditions warrant and which will repay the improved methods of maintenance brought into play by intelligent stockkeepers.

No more hopeful sign can be adduced supporting the desire of farmers to put into concrete form well conceived ideas of cattle improvement than the extensive importation of animals of the right type and from the homes of the different breeds.

Questions relating to the breeding and management of stock are now being taken up and discussed in a practical spirit. It is through the spreading of that knowledge that is gained by experience among those actually engaged in the business that correct methods are to become general.

The grain products of the country are being steadily kept up to a high level, affording evidence of the skill and perseverance exercised in that branch of farming. A notable feature at the Salisbury Show was the fine display of wheat. The quality of the samples exhibited is sufficient to set at rest whatever doubts may have existed as to whether or not Rhodesia is a wheat growing country.

The Tobacco industry is making rapid progress not only in an increased production but also in the favour and popularity given to the Rhodesian growth and manufacture.

This crop is coming to be recognised as a staple product and it also has the advantage that it can be grown directly from the raw veldt in most cases—a circumstance that meets the requirements of those that are coming into the country for the immediate occupation of the land.

Between cattle, mealies and tobacco, new settlers have items of agriculture to pursue which have immediate return enabling them to get fixed and settled on the land and giving them time to consider the nature of the country for other branches.

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## **The First Farmers' Bacon Factory in the United Kingdom.**

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By **LOUDON N. DOUGLAS.**

[Lecturer at the East of Scotland College of Agriculture,  
Edinburgh.]

Author of "Manual of the Pork Trade," "Douglas's Receipt Book for Bacon Curers," etc., Joint Editor of "Douglas's Encyclopædia of Bacon Curing, Meat, Food and Provision Trades," Editor of "Douglas's Encyclopædia of Dairying," Author of "Refrigeration in the Dairy," etc., etc., Joint Editor of Dr. Swarts's "Abattoirs and Cattle Markets," etc.]

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The distinction of being the first Farmers' Co-operative Bacon Factory in the United Kingdom belongs to the town of Roscrea in Co. Tipperary, Ireland.

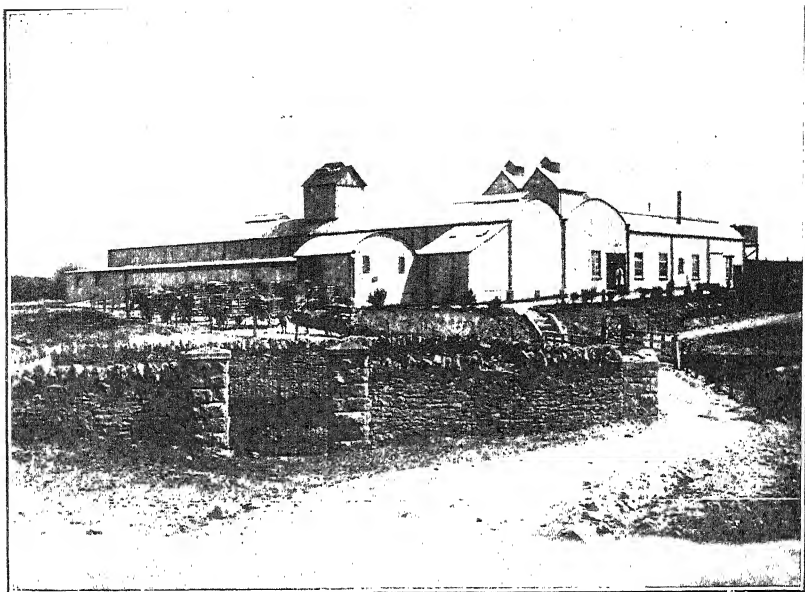
The town has a history which goes back to the beginning of the seventh century and at one time enjoyed much commercial prosperity and it was also the seat of considerable ecclesiastical learning. At the present day the "remains of its castles and ecclesiastical edifices, which were extensive and stately structures, with its ancient round tower, convey an idea of its former importance and render it an interesting object as seen from the hills in the neighbourhood, which abounds with picturesque scenery."

Roscrea is situated in a splendid position, and in the middle of a prosperous agricultural area, from whence some of the best pigs in Ireland have been drawn.

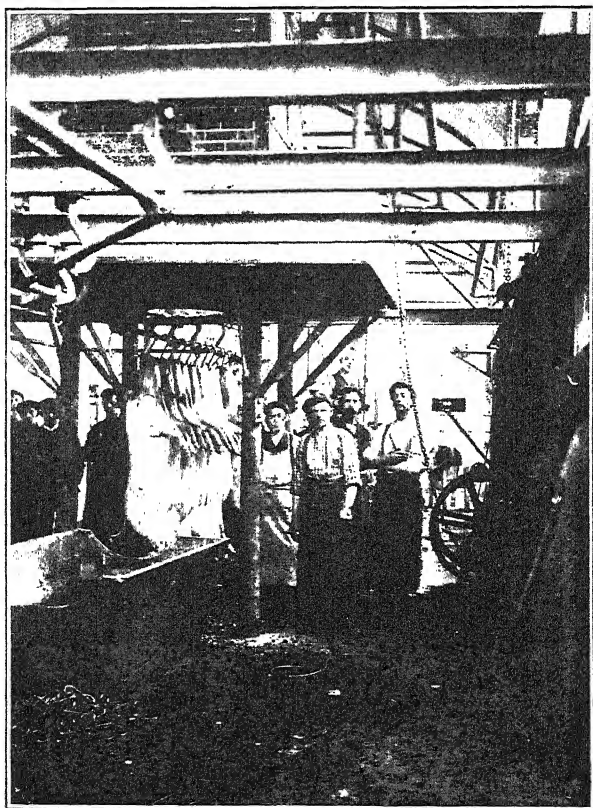
This fact so impressed itself upon so many members of the Roscrea community some few years ago, that steps were taken to test the feeling of the agriculturists as to the prospects of combining so as to form a Co-operative Bacon Factory in their midst. A work of this sort, however, is naturally somewhat difficult inasmuch as no such undertaking has been realized in Ireland before, and as a consequence, there was nothing in the way of local data which could be referred to by way of comparison, and the only authoritative information which could be thus utilized was such as could be obtained from Denmark, where co-operative bacon curing has attained so signal a success, that, although only commenced in the year 1888, there are now in that small country some 33 Farmers' Co-operative Bacon Factories.

In the initial stages the Roscrea Factory was much indebted to Mr. P. J. Hannon, at that time the chief organiser of the Irish Organisation Society, and who is now located at Cape Town, as the Chief of the Department of Agricultural Co-operation in Cape Colony. Along with him were associated the Reverend John Cunningham, C.C., and Mr. C. J. Spain of Roscrea, together with a large number of enthusiasts, who for some years previous to the actual registration of the factory, carried on a propaganda amongst the local agricultural community.

The district in which the supporters of the factory exist may be taken as an area within a radius of 18 miles round about Roscrea, including parts of King's County, Queen's County, Kilkenny and County Tipperary, and the work



Roscrea Bacon Factory.  
General view of the exterior of the buildings.



Roscrea Bacon Factory.



of organisation in such a large area, considering that the means of transport are difficult, was a very heavy one, and all credit therefore is due to Father Cunningham and those associated with him for the immense amount of hard work which they put in, in season and out of season, in order to bring about a successful organisation.

In this they were ably seconded by Mr. William Scully, and the usual method was to hold a meeting in a school-room or in the open air at some village and put forward the advantages of bacon curing, after which a Local Committee would be formed, and the members of this Committee would then accompany Mr. Scully from house to house so as to invite the residents to take up shares in the factory.

In this way 26 parishes were organised, and each parish formed a unit from which ultimately 46 representatives were appointed so as to form a General Committee. Thus, at the end of about two years from its inception, this General Committee met in Roscrea, and proceeded to formulate rules for the proper conduct of the business, in which they were assisted by Mr. R. A. Anderson, of the I.A.O.S.

One of the first steps also was to see to the improvement of the breeds of pigs in the neighbourhood, and in this work the Department of Agriculture and Technical Education for Ireland came to the assistance of the Committee with a grant of £100 and this sum, small as it is, has been judiciously expended in teaching farmers what kind of pigs are wanted for bacon curing, and also in the supply of stud boars which have been placed at the service of local breeders.

It must be borne in mind, however, that Co. Tipperary and the adjacent Counties have long been celebrated as one of the best pig breeding districts in Ireland, and that the principal supplies from these areas have been sent to Limerick for many years. The characteristic of the bacon produced from these pigs, is that it is firm in texture.

Having formed a General Committee it was necessary then to appoint a Directorate, which would be responsible to the Committee, and this was done, twelve gentlemen from each district having been duly elected. The Committee also elected in addition to these, a President,

Mr. Thos. Corcoran, C.C., and under his able Chairmanship the factory was duly brought into existence.

It may be well to state that the Directors retire in rotation, but are eligible for re-election. The General Committee and the shareholders thus having a complete control over the administration of the business.

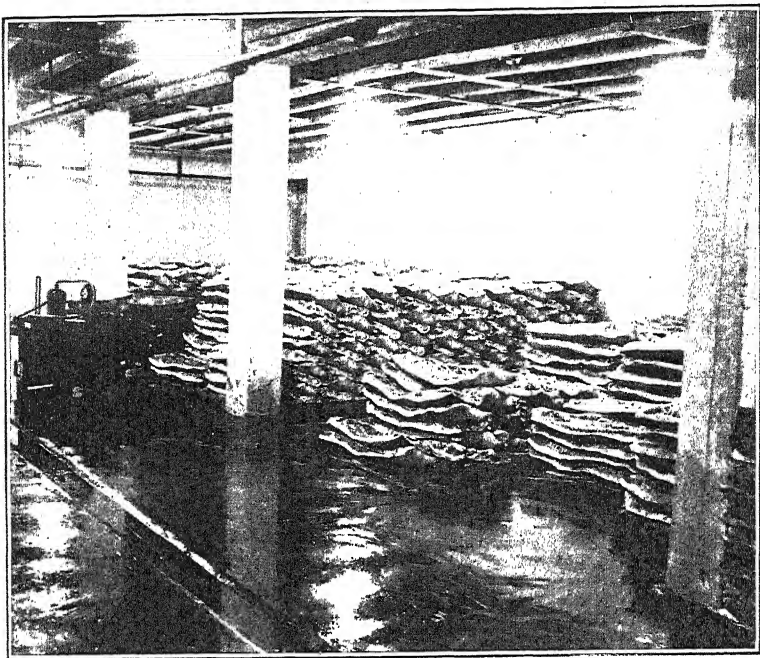
The Roscrea Bacon Factory was inaugurated and has been carried on since its start as a Friendly Society, and is registered under the Friendly Societies' Acts. It is purely co-operative in principle, and each shareholder is entitled to share in the profits according to the number of pigs he supplies. A salutary rule exists that each member of the Society must, under a penalty of 10s. per pig, offer such bacon pigs as he produces and *all* of them to the Factory. This ensures a constant supply of the raw material, and also prevents any attempts by outsiders to unduly influence the local markets temporarily, so as to induce pig breeders to send their pigs elsewhere. On the other hand it is laid down that a bonus will be given to pig suppliers according to the number of pigs which they produce.

The rules are very comprehensive in character, and are subscribed to in a declaration which each shareholder has to sign, and which forms a definite and binding contract.

The number of shareholders is about 2,800 and the capital aimed at is £15,000. It was not thought necessary to call up the whole of this sum to begin with, but the enormous success of the undertaking has made it necessary to revise this decision, and in consequence the Directors have decided to call up the whole of the capital so that the trading of the Society may be conducted on the best possible lines.

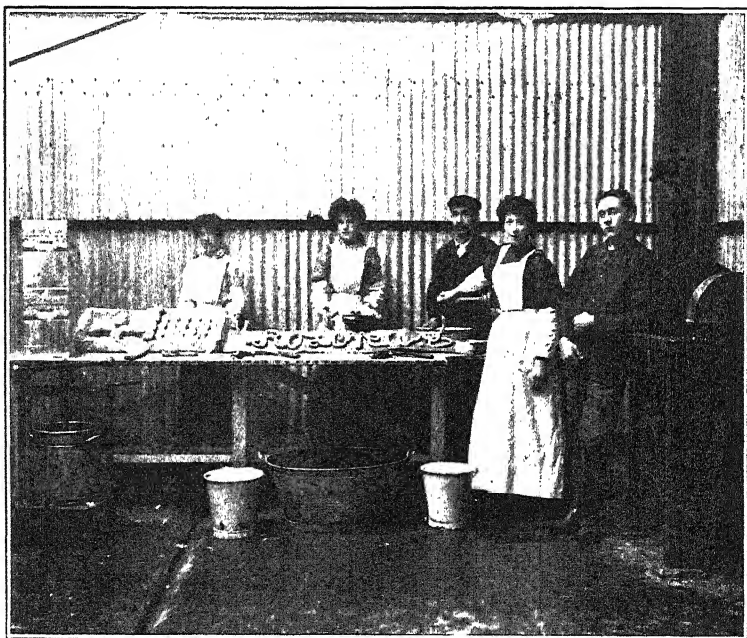
The Bacon Factory was designed and has been equipped throughout by Messrs. William Douglas & Sons, Limited, of Putney, London, who are well-known as having constructed all the bacon factories in the United Kingdom for many years.

The building is situated on a plot of land adjacent to Roscrea Railway Station, and is constructed throughout of corrugated iron which forms the roof and sides and which is carried on vertical iron columns.



Roscrea Bacon Factory.

Curing cellar, showing pickling pump for forcing the curing pickle into the meat. The sides shown are "Wiltshire" cut, and consist of the whole sides. Each "stack" consists of five pigs or ten sides, and the curing lasts about 14 days.



Roscrea Bacon Factory.

Scene in the sausage room. All the trimmings as they are freshly cut are made into sausages.



The total area covered is approximately 136 ft. x 120 ft. and the departments are laid out in the following order:—

1. Receiving Shed.
2. Pig Sties.
3. Catching Pen.
4. Sticking Pen.
5. Bleeding Passage.
6. Scalding, Scuttling, Singeing and Disembowelling Tack.
7. Hanging House.
8. Gut House.
9. Chill Room.
10. Curing Cellar.
11. Sausage Room.
12. Lard Room.
13. Packing House.
14. Smoke Stoves.
15. Engine and Power Room.
16. Offices.

It will thus be seen that the factory embraces all the various Departments necessary in a modern building of the kind.

The capacity of the Bacon Factory is 750 pigs per week, and the total cost, including the land, was about £7,500.

The pigs are first of all received at the Receiving Shed, and the factory are prepared to pay for them there and then by live weight. As a matter of fact all pigs are passed over a live weight scale, but the farmer has the option of being paid either by live weight or by dead weight. The difference that is reckoned between live weight and dead weight is put down at one-third, so that if the factory pays 30s. per cwt. live weight, this is equivalent to a difference of 10s. or 40s. dead weight.

The Receiving Shed is so constructed that farmers' carts can be brought up close, and the pigs are able to walk straight on to the Receiving Platform and thus all accidents are avoided. After they are weighed alive the pigs are driven into the Pig Sties, which are 17 in

number, and have an accommodation for about 200 pigs. Such a number of pigs may be received throughout the day, and they are allowed to rest until the following morning when they are slaughtered. The slaughtering always takes place in the morning.

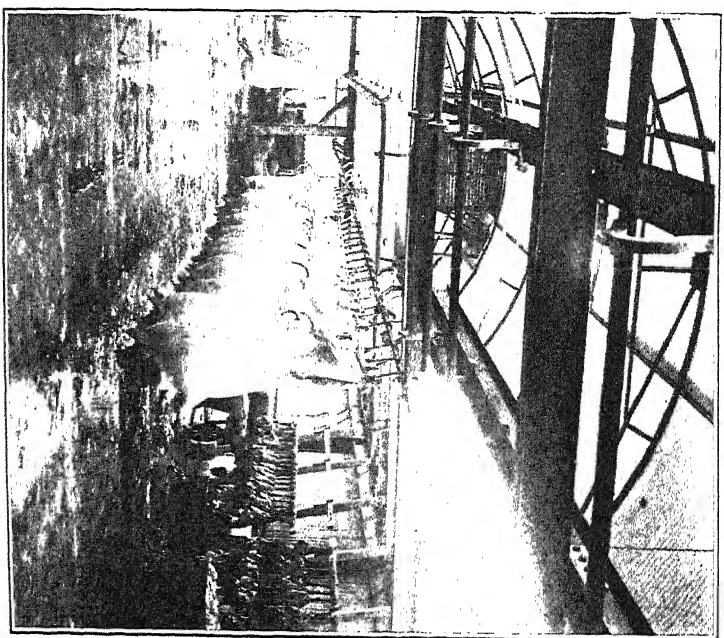
When the real work in the factory begins, the pigs are driven in batches into the hoisting pen, and are hoisted one by one. They are hoisted to the sticking pen by means of a hand hoist, and a shackling chain which is passed over one of the hind feet, and thus when in a vertical position the blood is let out, the whole operation occupying a very short time—the average being about one minute between the time when the pigs are driven into the hoisting pen, and the time they are dead. As soon as the slaughtering has taken place the carcasses are pushed along into the bleeding passage, which is broad and roomy, and is capable of containing 50 or 60 pigs at one time. The walls of this Department are lined with glazed white tiles, so that any speck of offensive matter which might be left behind are easily distinguishable and can be washed off. When the carcasses are hung for some little time in the bleeding passage, they are pushed along the hanging bar, and are then thrown upon a dumping table, where the shackling chains are removed. They are then rolled into the scalding tank where the hair is scalded off, and, as soon as this is accomplished are thrown upon a scuttling table where the hair is cleaned from the carcasses. At this point it is necessary to determine whether the carcasses have to be used for Wiltshire bacon or as scalders from which the Irish bacon is prepared. If they are to be used for Wiltshire bacon the carcasses are passed through a singeing furnace, which not only removes any hairs that may be left on, but hardens the skin, and imparts the peculiar flavour to the meat such as is usual in Wiltshire bacon. The carcasses are then thrown into a cold water bath, and immediately hoisted to the disembowelling bars, where they are disembowelled, dressed and cleansed by means of overhead sprays of water; the offal being carried to the adjacent gut house.

Should the carcasses not require to be singed, they are passed along an independent bar clear of the singer, to the same disembowelling bars, and are dressed in the same way. After disembowelling the carcasses are passed on to the dead weight scale, where they are weighed and





Roscrea Bacon Factory.  
View in hanging house after branding of the sides has taken place. The brand contains the name of the factory, and is burnt on to each side as a guarantee of its being good produce.



Roscrea Bacon Factory.  
View in disembowelling department. The pigs shown have been scalded and washed free from the black deposit acquired in the singler, and are now ready to be dressed.

are then split down into sides and the backbones removed, the head and fore feet are severed and are allowed to hang by a small piece of skin. The flake lard is removed and, together with the backbone is thrown over the carcasses, the sides being kept together by a small piece of unsevered skin at the nape of the neck. After dressing they are pushed on to the hanging house where they are hung for a number of hours so that the excess of animal heat may dissipate.

When this has been accomplished the sides are entirely severed, and the various offal separated and handled in different Departments. Thus the lard is taken to the lard room; the head and feet are forthwith placed in pickle to be cured; the backbones are sent away fresh.

The dressing of a side of bacon is a process which requires some considerable experience, and it would take some time to describe. It will be sufficient, therefore, for our purpose here to say that, the sides after being properly trimmed and dressed are hung in the chill room which is held at a temperature of  $38^{\circ}$  Fahr. and in which a constant current of cold dry air is circulating at that temperature. The meat is therefore reduced to about  $38^{\circ}$  Fahr. and this process occupies something like a whole day, after which the sides are passed into the curing cellar. Here they are finally trimmed, and the hind feet are removed, or, as the case may be, they are dismembered and converted into hams, middles, etc. In the case of Wiltshire sides they are pumped with a recognised pickle, and are then sprinkled over with curing antiseptic, on the top of which is placed a heavy sprinkling of curing salt. The same process takes place with almost every part of the pig, and on the average about two weeks is allowed for the curing, but of course this is modified according to the character of meat it is intended to produce. Hams, for example, are not pumped and are kept about 21 days in salt.

When the meat is cured it is drained free of the pickle, and is then removed from the cellar and washed. It is then, if wanted as smoked bacon, placed in the smoke stoves, or if not wanted as smoked bacon, or hams is sent away in the green state.

The various products of the Roscrea Bacon Factory are:—Wiltshire sides, Dublin cut sides or "middles," hams, rolled fore ends, rolled three-quarter sides, and

"gams." The products of the Auxiliary Departments are:—Sausages, black puddings, lard, cooked hams, etc.

In connection with all these various products there is a certain amount of skill and experience necessary, and the factory is fortunate in having as Manager, one who thoroughly understands the manufacture of every product which is produced from the pig, in the person of Mr. J. W. Welsh.

Mr. Welsh has had the advantage of experience in the best Bacon Factories not only in the United Kingdom, but in the United States. He also possesses the distinction of having obtained at successive London Exhibitions some thirteen medals for bacon curing in open competition with the manufacturers of the United Kingdom.

In all bacon factories the auxiliary departments call for very close attention, and we therefore find that the sausage room and lard room at Roscrea are completely equipped with machinery capable of producing sausages and lard in the most economical and best way.

The notable feature of the factory also is the motive power which consists of a 50 h.p. gas engine and suction gas producing plant. This gas engine is connected up to the main shaft and actuates the whole of the machinery throughout the factory. The principal machine is, of course, the refrigerator, which is called upon to maintain the chill room at 38° Fahr. and the curing cellar at 42° Fahr.

The refrigerating machine is a No. 7a "Douglas" machine of the horizontal pattern and the refrigerating gas used is sulphurous anhydride. It is connected to the chill room by means of an independent air cooler which provides the circulation of cold air and it is also connected with a complete system of brine drums which cover the ceilings of both the chill room and the cellar and through which cooled unfreezable brine is constantly flowing. It is necessary, however, in a bacon factory to have a plentiful supply of steam, and this is supplied by a vertical steam boiler which provides all the steam necessary for the scalding, cooking, cleansing, etc.

It only remains to be said that in such a factory there are of course offices suitable to the business, and there are also many accessory appliances of a minor character which are called into use in the various departments.





*Photo by]*

Aberdeen Angus Bull,  
imported by A. G. Hay.  
1st Prize.

S.A. Bred Shorthorn Bull,  
belonging to Mr. R. Fletcher.  
1st Prize.

Imported South Devon Bull,  
belonging to J. F. Dreyer.  
1st Prize,  
Lt. Lionel Miles.

The situation of the factory is such that no trouble arises from the surroundings and the drainage is perfect, so that all the conditions are hygienic and perfect in every way.

The factory started on January 2nd, 1908, and has been working constantly, handling about 200 pigs per week ever since.

A notable feature of the business is that, whereas, the factories which exist in Ireland, at the present day, rely upon the export of their products, the Roscrea Factory has so far not been called upon to look for markets outside of Ireland, and apparently will not be called upon to do so for a long time to come.

The total staff employed is about 32 so that the weekly expenditure in wages is not a very great item. At the same time desirable employment is given to workmen in the vicinity.

The launching of a Farmers' Co-operative Bacon Factory in Ireland is somewhat in the nature of an experiment, and the progress of Roscrea is being closely watched by many Agricultural Societies throughout the United Kingdom. This factory possesses many initial advantages, such as a guaranteed supply of pigs, a large body of shareholders who in themselves form an important clientele in so far as the products of the factory are concerned. It has also the advantage of having started with a comparatively small capital, and indeed it might be said that for such accommodation as is found at Roscrea, no such place has been designed or constructed so cheaply before.

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### **Bulawayo Show.**

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The Show held in connection with the Bulawayo Agricultural Society took place at Bulawayo on the 3rd and 4th June.

The arrangements for the comfort of the animal exhibitors have been greatly improved over former years, substantial pens having been constructed and covered over, shading beasts from the sun.

The weather was simply perfect thus encouraging the attendance of the general public. They turned out in large numbers manifesting great interest in what is being done in the country agriculturally.

Cattle, Mealies and Tobacco although not entered in such large volume as in former years, yet the quality of the exhibits is shown to be distinctly improving, marking a distinct step in advance in the main points of agriculture.

### CATTLE.

In the cattle section the animals imported from overseas were a feature in themselves and drew the most interested attention. The presence of these animals in such numbers and such variety of breeds testifies that farmers are taking them up in earnest and using them as the means of fulfilling ideas in stock improvement.

No useful purpose is served by entering on a criticism on the individual merits of these imported animals either as to breed or type.

They are all true to type, of long pedigree and are excellent in every way for the purpose of infusing fresh blood among Rhodesian herds.

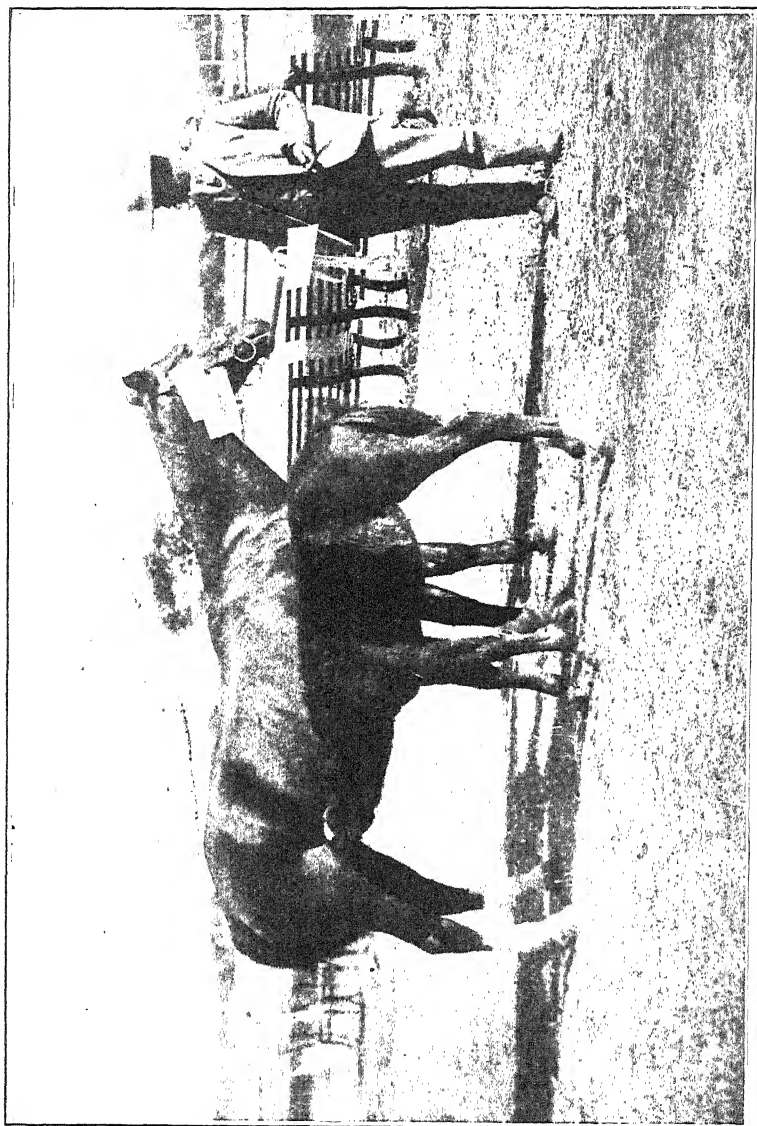
Indeed none of the particular breeds present at the Show, whether Shorthorn, Hereford, Devon, Friesland, or Aberdeen Angus, can yet be said to have gained any particular supremacy, or has been established and proved to be the one and only breed fitted for the country.

There is room for each and every one of them in Rhodesia. It is pleasing to note the presence of the Aberdeen Angus, for in respect of crossing purposes this breed will without doubt make its way into favour—the sample exhibited giving token of the briskness and energy attaching to the class.

Apart from a few imported animals the quality of pure bred Shorthorns and Frieslands has not yet reached a standard that can be recognised as high for show purposes, yet there is an all-round improvement among all the heifer classes, marking distinct progress in breeding beyond what has been shown in former years.

The introduction of well bred bulls during the past few years is now being manifested in the offspring. Such a large number of promising young heifers augurs well for the standard to be expected at future shows.

But the breeding of pedigree stock is an undertaking not readily to be achieved by ordinary farmers in other countries besides Rhodesia.



*Photo by]*

1st Prize Mare and Foal, belonging to Mr. Devitt. Foal by "Robber Knight."

*[A. Lionel Myers.*



Considerable advance must be made in the conditions under which cattle are reared before pure bred animals can be bred with the best results.

Among all the pure bred stock shown there was a bareness of flesh manifested, pointing to the adoption of more effective measures for improving the feed in order to keep pace with the improvement of breed.

The Shorthorn heifers belonging to Mr. Fletcher (one of which took the championship) give some indication of what can be done in the way of rearing high-class animals. Bred and reared in Rhodesia they at least equal and will hold their own with anything in the same class coming from Cape Colony. Such specimens are satisfactory since they are positive results testifying at this early stage to the inherent possibilities of the country.

The Shorthorn and Friesland heifers belonging to Mr. Soutter are also of a superior type and are a forward gain helping to raise the standard of breeding animals.

The quality of the cross bred heifers showed a pronounced advance over former years. The great bulk of Rhodesian herds are composed of this class and their general improvement means the improvement of the cattle of the country. Indeed there was little to choose between the cross and the greater part of the pure bred heifers from a practically useful point of view.

The two Friesland bulls belonging to Messrs. H. T. Fynn and H. P. Fynn respectively are both well set up animals, having the lines of high-class breeding well stamped upon them. They have perhaps not grown out to the size they gave the early promise of last year when shown as yearlings, but this retarded growth is a common feature among all imported bulls, the first prize four year old S.A. bred shorthorn bull belonging to Mr. Fletcher being no exception.

A good deal may be due to sudden change of feed and surroundings—the process of getting acclimatized. This ordeal Mr. Hull's two fine imported Shorthorn bulls have deeply suffered from and are now recuperated, but with a loss of growth and symmetry of form which can never be wholly made up again.

This, however, does not imply any detraction from their usefulness and value for breeding purposes but only concerns their appearance in the show ring.

In the Africander classes the numbers were much fewer than last year but there was no falling off in the quality of the animals.

Messrs. H. P. and H. T. Fynn were the chief exhibitors in this breed.

The herd belonging to the Messrs. Fynn is of long standing. It has been skilfully selected and bred up from pure bred Africanders to start with.

It is greatly to the credit of the breeders that they have maintained in such purity of type this breed of cattle within Rhodesia—thus forming a herd of Africanders that are equal to and will hold their own with any existing in S. Africa.

Notwithstanding everything that is said in their favour the fact remains that the show display made by Africanders is falling off year by year. A change is gradually working towards a more quickly maturing animal and one not so leggy, this being felt from experience to be within the scope of Rhodesia to maintain without any great artificial help.

### SHEEP.

It is a subject of some concern that sheep have fallen away to such a degree among the live stock entries of the Show.

It is difficult to account for the smallness of the exhibit considering the large numbers that have been introduced into the country during past years.

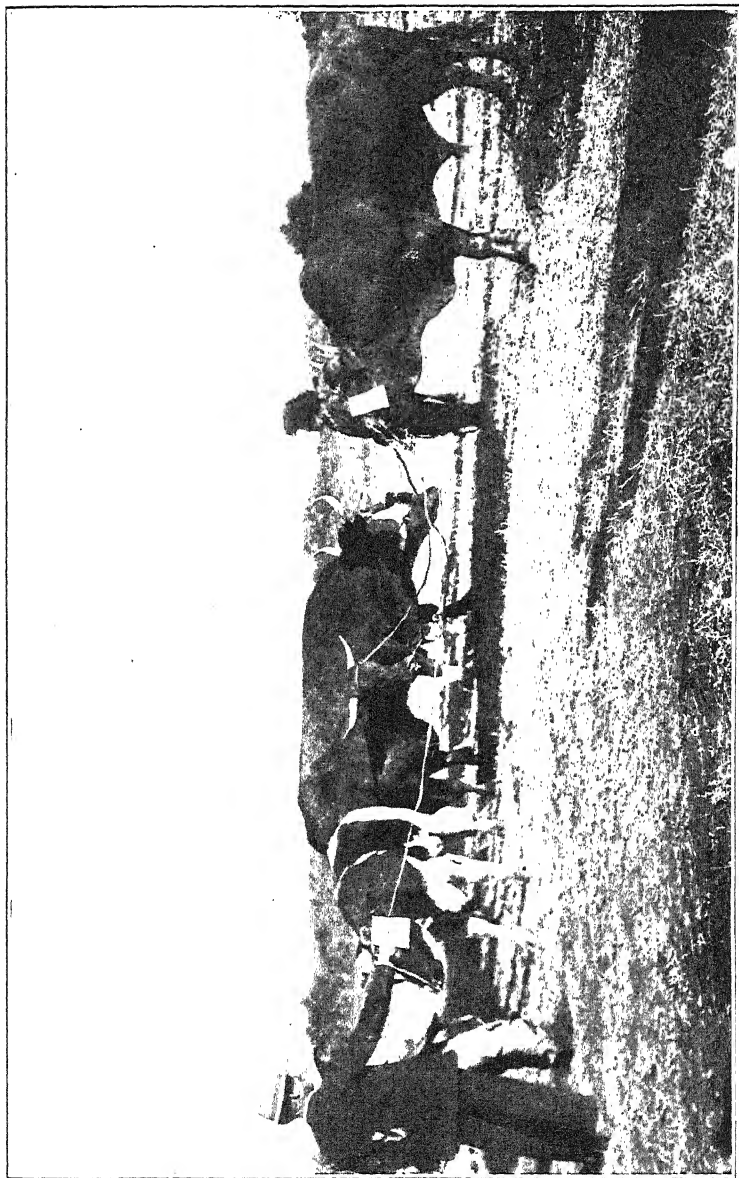
The sheep industry as a farming asset belonging to the country cannot be neglected without incurring ultimate loss. A revived interest in sheep breeding is greatly called for particularly as pure bred Persians are found to do well and are even preferable to half bred.

The lots of Persians shown by Mr. Curtis have a healthy looking and thriving appearance about them. They give every encouragement in promising that this variety will prove more successful in the existing circumstances of the veldt than woolled sheep or any crossed breed.

### PIGS.

The Pig section was remarkably well represented this year, a large number of very fine specimens being shown.

Mr. E. F. Sheppy contributed largely to the exhibit by a number of fine sows and boars lately introduced.



*Photo by*  
1st Prize Friesian Bull, 1st Prize African Cow, 1st Prize Slaughter Oxen and 1st Prize African Bull,  
belonging to H. Fynn, Bembesi.  
*LA Lionel Myers.*



These animals are a valuable acquisition towards building up a high-class race of pigs belonging to the several varieties of Yorkshires, Berkshires and Tamworths.

These varieties or crosses of the same will form the desired material for supplying the bacon factory—this industry that has been so long promised and which offers no further excuse of being delayed in so far as the number or breed of pigs is concerned.

## HORSES.

The entries for Horses scarcely came up to the numbers shown last year, the younger animals not being so well represented.

The classes were all of the lighter breeds, mostly hackneys for riding and driving.

The display of horses was very creditable considering the large number that was swept away last year with horsesickness, thus betokening the keen interest manifested in these invaluable animals in the face of any circumstances.

The mare with foal shown by Mr. P. Devitt was specially interesting since the foal was by the Government Stallion "Robber Knight." The foal got first prize, an honour well deserved. It is a subject of much regret that so many mares in foal to this stallion died the previous year.

## PRODUCE—CEREALS.

Although the entries in the Produce Sections were fewer than on former occasions the exhibition of Mealies reached a high standard of quality, improving even over former years.

The mealies put into competition were all of a very superior description. It is highly satisfactory to note that the fine varieties of both white and yellow mealies introduced from America three or four years ago have not fallen off nor degenerated in any way from the original samples.

The prize mealies in every class gave evidence of careful selection of seed in a rich well cultivated soil together with having a climate well suited for their growth.

While the mealies were thus excellent and well represented the rest of the produce either in number of entries

or in quality was hardly what should have been expected considering the stage of farming the country has already arrived at.

While some of the products, beans, potatoes, mangolds, hay, etc., may be termed good, yet there is room for a great deal of improvement before the natural capabilities of the soil and climate are fully exercised in skilful hands.

Wheat and beans were creditable to the growers but there was a lack of competition in these two important crops as well as others revealing an appearance of indifference among farmers in taking up their culture systematically.

The two entries of assortment of winter food for cattle was a useful and most admirable exhibit. The varieties, beans of several kinds, teostinte, mangolds, lucerne, forage, hay, etc., are all articles of cattle feed not only excellent in themselves but they can all be grown in the country in the ordinary course and in any quantity.

Fruit, jams, and vegetables were all admirable, giving evidence of the wonderful variety of products that are raised in the country, every one of which is capable of being turned into a special industry.

## POULTRY.

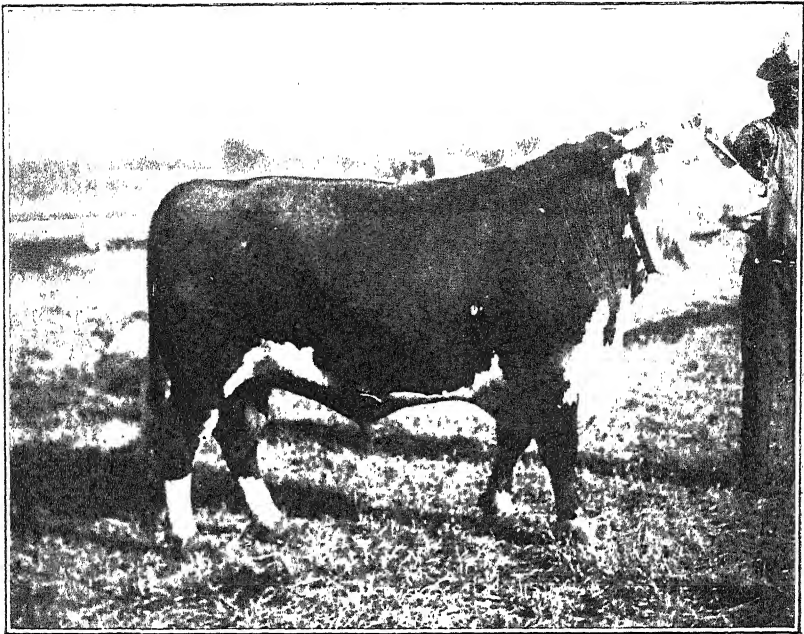
On most of the breeds of poultry there was a decided improvement from last year's Show, especially in Black and Buff Orpingtons, Silver Wyandottes, and White Leghorns.

The firsts in Black and Buff Orpingtons were very fine birds, and in the Hen and Pullet classes some good specimens were shown.

Some improvement could be made in Silver Wyandottes although some of the birds were well marked. They all showed a decided leggyness.

A few White Leghorns were really good. The 1st prize Cockerel and champion over all classes in the show was a remarkably fine specimen and was benched in excellent condition. The firsts in the Hen and Pullet classes were also good and well shown.

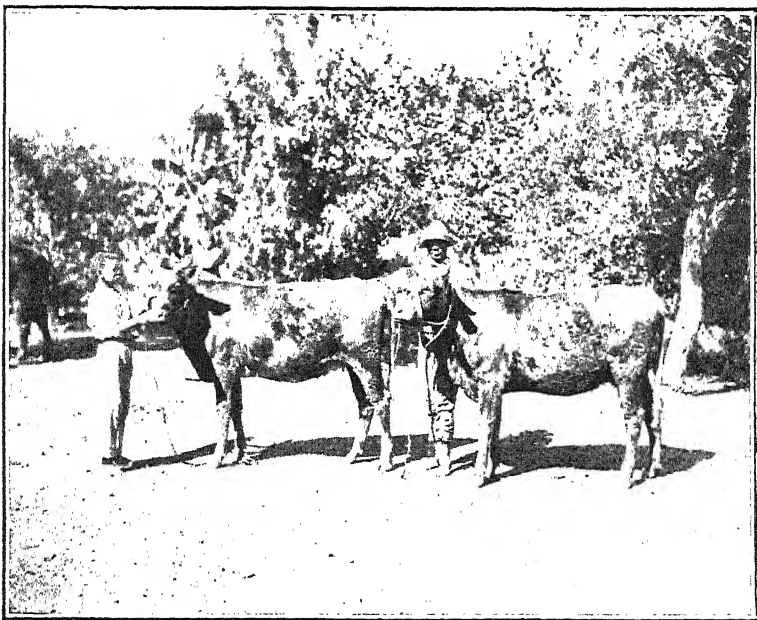
The remainder in all the other classes require much more care and attention before reaching the standard,



*Photo by]*

Imported Hereford Bull, belonging to Mr. R. Granger, Monaro Farm, Figtree.  
Champion at Bulawayo Show.

*[A. Lionel Myers.*



*Photo by]*

1st Prize and Champion Shorthorn Heifers, belonging to R. A. Fletcher.

*[S. C. Turner.*



with the exception of the few birds already mentioned. They had little or no attention given them for exhibition.

All the Turkeys including American Bronze were good, with fine frames, but the colour in Hens had a tendency to lightness.

### IMPLEMENTS.

The farming implements, machinery and utensils shown were more inclusive than anything hitherto brought together in Rhodesia.

Ploughs, harrows, cultivators, and sowing machines and planters in their several types and makes were all on exhibition, together with mowing machines for all purposes of veldt and other hay cutting, rakes etc. A specimen of a mealie reaper and binder shown by A. F. Philip & Co., drew a good deal of attention since its advantages are obvious and its need becoming apparent. Tobacco transplanters were on view and also Potato planters. Water pumps of all kinds gave token that the water question is an important one to the farmers.

The collection of vehicles shown by Mr. G. Fath, of Bulawayo, was most comprehensive and made an attractive sight, which was all the more pleasing that it represented local industry.

Messrs. Hepker & Co., agents for King Bros., Durbanville, C.C., had a capital display of farm wagons, transport wagons and carts.

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## Salisbury Show.

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The tenth Annual Show of the Rhodesia Agricultural and Horticultural Society was held at Salisbury on the 26th and 27th June.

The total entries were about the same as last year but considerably more interest attached on account of the cattle section being represented.

Additional room was provided this year by the inclusion of the Drill Hall and grounds along with that of the Society.

The floor space of the Drill Hall was filled with a fine display of Rhodesian agricultural products, which were rendered attractive through the facility afforded in viewing and examining them.

Admirable accommodation was provided for the Horse section and the competitions in connection therewith in the Drill Hall grounds, while the cattle and remaining sections, including machinery, took up the grounds and buildings of the Society.

## CATTLE.

When it is considered that Cattle have not been exhibited at the Salisbury Show for a number of years it is gratifying that the entries in this section were so well filled and also that the stock presented was of such a promising character.

Although the Shorthorn bull belonging to Mr. Fitzgibbon was the only oversea imported specimen on the Show, yet this animal alone was the centre of great interest since he was a typical example of the beef producing Shorthorn, an opportunity of seeing which having been afforded in Mashonaland.

This bull took the champion honours among all classes, but next year there promises to be a much wider competition among imported animals for this honour.

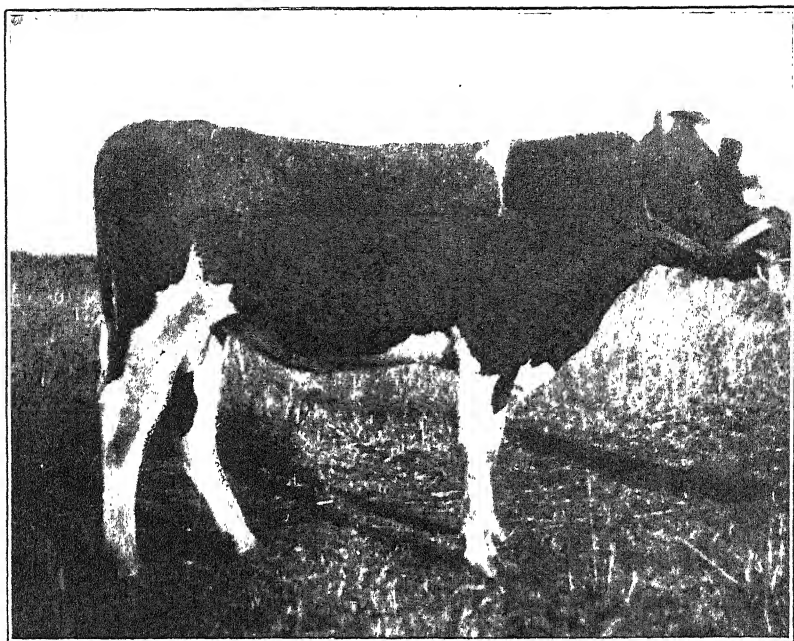
Among S.A. bred Shorthorn bulls an animal belonging to Mr. Palmer was placed first. This bull, a Lincoln Red, has good symmetry and has a nice head. Like all imported bulls he has scarcely attained the size that should be expected at four years old, but under veldt conditions this bull has maintained himself well.

The second prize bull belonging to Mr. Newton is a promising young animal. He has well developed quarter but indicates a tendency to become little coarse in the head.

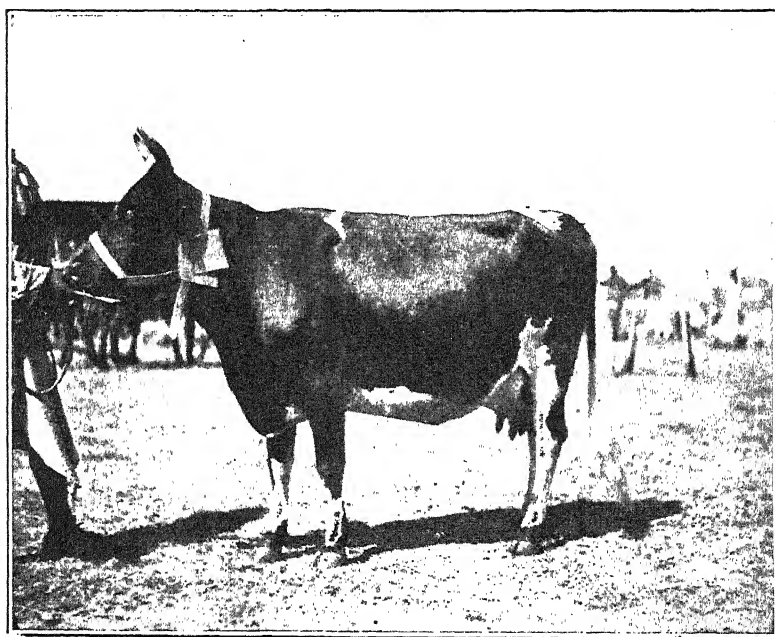
In the Friesland class the young bull belonging to Mr. C. C. Macarthur is a very superior specimen of this breed. He is one of the best hitherto imported. He is thick in the quarters and has a nice well set head. Mr. Kinkaed Smith's bull which took second place is also a good useful animal showing purity in breeding.

The Africander bulls were fairly typical of their class, but were inclined to coarseness in their general appearance, including head and horns betraying mixed blood in them.

Among cows the animal which was most conspicuous was a Friesland cow belonging to Mr. Macarthur. This cow has a fine cast of frame standing well on short clean



*Photo by]* 1st Prize, Friesland Bull, 17 months old, belonging to C. C. Macarthur. *[H. C. Thwaites.*



*Photo by]* Friesland Cow, belonging to C. C. Macarthur. First as Dairy and Champion Cow in the yard. *[H. C. Thwaites.*



legs. She has a fine head and pliable soft skin, altogether a typical milk cow. She secured first place in her class, also among dairy cows, and was placed champion cow in the yard.

Among the heifer classes Messrs. Maclaurin Bros. placed on the show a fine exhibit of Frieslands. These have lately been imported from the Cape Colony and are all pedigreed animals.

A very choice specimen among this lot took the championship among all classes of heifers. A great acquisition has been made in having such high-class cattle brought into Mashonaland for breeding purposes.

Pure bred Frieslands will thus be raised within the country without the element of crossing interfering.

Among the other heifer classes the crossed heifers belonging to Mr. H. D. Zimmermann stood first. They are a cross from a well bred Shorthorn bull and Native cows, the Shorthorn carrying the type conspicuously. This example proves conclusively the value of a pure bred bull for crossing purposes.

A special exhibit of crossed cattle belonging to the Rhodesia Lands brought before farmers the results of crossing with half bred bulls. Three generations of crosses were on view but the exact breeds describing the bulls used were not declared nor were they very apparent.

A good deal of the Africander seemed to pertain to the second generation, which was the best, but the third generation manifested a reversion back to the original Native type, the improved blood being all but gone from them.

The comment of the Judges that this exhibit was a "lesson in mistakes" should help in impressing on every farmer who attempts grading up cattle the necessity of using only pure bred bulls.

Among the cattle classes much improvement is to be expected in the future in bringing animals forward in better show condition and free of ticks.

## SHEEP.

The entries in the Sheep section were about the same as last year but generally speaking the quality of the animals is still rather indifferent.

Among woolled breeds good average Shrops were exhibited by Mr. E. F. Sheppy and a Merino ewe and ram by Messrs. Arnold & Co.

The crosses between Native ewes and woolled rams were not very enticing, there being a want of vigour and robustness about them.

The Persian looked to better advantage. Indeed the crosses between a Persian ram and Native ewes that were penned by Mr. H. G. Morris looked highly promising. They were the keenest and most thriving looking among the whole of the sheep section.

It is not a little remarkable that both these cross bred ewes and the cross bred ewe lambs (first cross) all have taken on the Persian type, the Native character being subordinated.

With due care and attention in the selection of clean Native ewes there is a promising field for raising Persian crosses over and above breeding only pure Persians.

### PIGS.

The Pig section was strongly represented in all classes both in numbers and in quality, a great advance having been made since last year.

In both Yorks, Berks and Tamworths some very fine pigs were shown. Mr. E. F. Sheppy secured firsts in each of these classes and also gained the championship with a Yorkshire sow.

Among Rhodesian bred pigs Messrs. Maclaurin Bros. took first with a fine evenly fleshed Yorkshire sow under twelve months old.

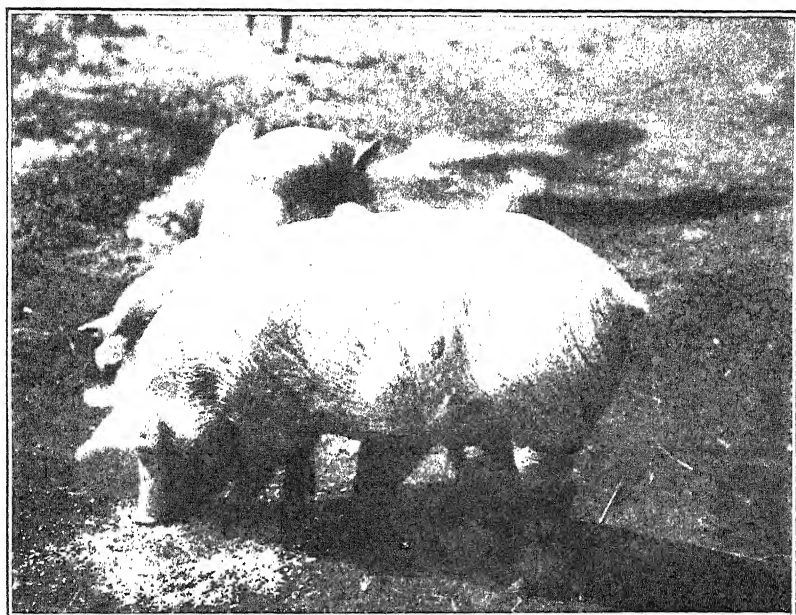
Mr. J. W. Dunlop had several Tamworths penned which were very creditable specimens of that breed and were duly awarded prizes.

The Chishawasha Mission and Mr. C. S. Marks showed good samples of cross and slaughter pigs.

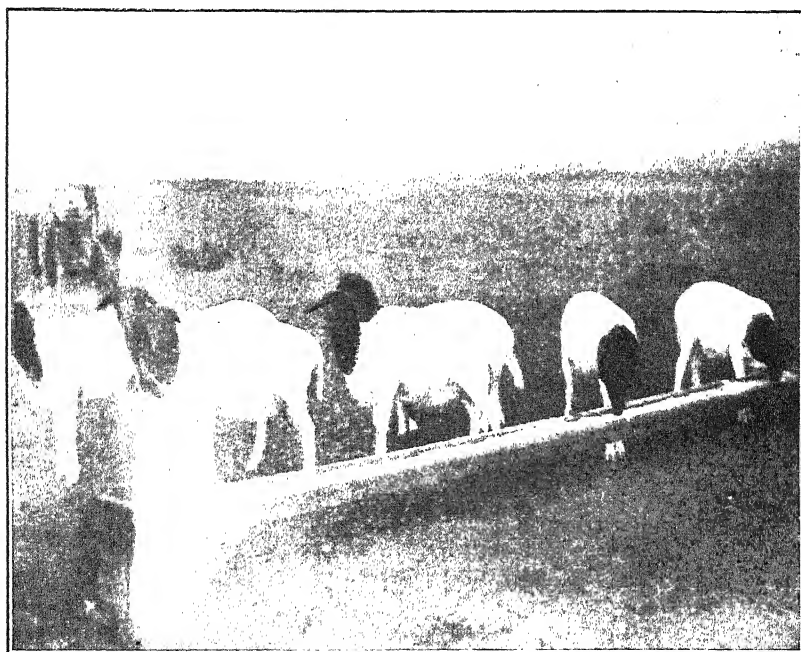
### HORSES.

Very keen interest was manifested in the Horse Section, the entries far exceeding those of last year in all the classes.

The horses all belonged to the light breeds, chiefly hackneys of different height and age, animals for use in riding and driving.



*Photo by]* [H. C. Thwaites.  
1st Prize Rhodesian Bred Yorkshire Sow, belonging to Messrs. Maclaurin Bros.



*Photo by]* [H. C. Thwaites.  
Cross Lambs, first cross between Native Ewes and Persian Ram, belonging to H. G. Morris.



There was a good muster of colts and fillies, many of them being of considerable merit and all showing great care and attention in their upbringing.

Indeed, all the horses looked well and gave evidence of the great desire of the owners to do their best for them in the way of treatment.

The horses provided highly attractive sight seeing in the riding, driving and jumping competitions.

Mr. H. Williams, Gwelo, carried off the chief prizes in these events, the jumping of one of his horses being superb.

The section tent pegging brought a very full entry and was well contested, the skill and horsemanship displayed earning well deserved praise.

## DOGS.

The canines were brought together in great variety, over a dozen different breeds being represented. Good specimens were seen in all the classes both in pointers, greyhounds, fox terriers, and fox hounds, besides a number of well bred fancy dogs.

## IMPLEMENTS.

Farming implements, machinery and utensils covered a large space of ground and were a conspicuous feature in the showyard.

The B.T.A. secured medals for best collection of farm implements and also for best collection of dairy utensils.

Messrs. Meikle Bros., The A.A.T. Association, A. F. Philip & Co., Bulawayo and E. F. Sheppy, all had very comprehensive assortments amongst them, including wagons of all kinds.

Practically all modern implements were on exhibition that are in general use in the country. Some other implements will probably be required in the near future, such as machines for threshing grain, land rollers, mealie reapers and binders, cheese making appliances and also more varieties in mowers and reapers.

A very interesting and important exhibit was the steam boring drill shown by Mr. Francis at work in the showyard.

This big jumper drill is worked by steam power and is capable of sinking to the depth of 800 feet. It is hardly ever necessary, in this country, to go so far as water is generally found permanent at less than 300 feet.

The great advantage of securing a good supply of water by means of this system of drilling cannot be over-estimated. We understand Mr. Francis is now under contract for putting down six inch bore holes for water on a number of farms in Matabeleland.

### PLOUGHING COMPETITION.

In connection with the Implement section of the Show a ploughing competition was held on Mr Browning's plot on the Commonage.

Four three-furrow disc ploughs took part in the trial, the agents for which being the B.T.A. Ltd. (Ransomes, Sims & Jeffries) Messrs. Meikle Bros. (Cockshutt), A. F. Philip & Co., Box 81, Salisbury (Syracuse Flexible Disc), A.A.T. Co. Ltd. (Deere).

The conditions were that each plough had to turn over one half acre of ground.

At this season of the year the raw veldt is dry and hard thus rendering the test a very severe one on the relative capacities of the different makes to turn over the ground to any depth.

A good deal of skill is required in order to set the ploughs properly that they may be made to face the work in the manner designed by the makers.

Fourteen strong bullocks were yoked to each plough, a number that seems sufficient for ordinary work, this being much too hard.

After getting a start it soon became apparent that the Ransomes, Sims & Jeffries was doing remarkably good work and upon which even improvement was made as it proceeded. The plough turned over a clean cut furrow to the depth of over nine inches and with no unturned ribs left in the bottom.

When all had finished the Judges awarded the gold medal for this plough's work to the B.T.A. Ltd.

The work of the other ploughs was fair in some cases the A.A.T. Co. being placed second for the Deere plough.

The Flexible Disc has some advantages in that it can be made lighter or heavier to suit the ground.

## Cattle Breeding in Mashonaland.

By C. C. MACARTHUR.

On looking through the Beef or Ranching Cattle exhibited at our last local Show it struck me that the men who are taking up the branch of the cattle industry in this province (Mashonaland) seem to be rather at sea as to what they are aiming at.

For example I will mention the special exhibit of a large Land and Mining Co. The animals were shown I believe with a view to demonstrate what could be bred from Native and German East African cattle.

Well I hardly think the Manager of that Company could be very proud of those cattle. As beef animals they were poor specimens. It was quite obvious that where pure bred bulls should have been used, mongrels took their place, with the natural result that in this third cross they had thrown back to very nearly the original animal.

It is hardly necessary to point out to the ordinary man that to grudge the price of a pedigree bull is a very short sighted policy indeed. (I do not say what breed because it has yet to be proved what beef strain will do best in this country). One thing, however, is certain that if pure bred bulls are used the first cross is excellent but what will happen when it comes to the second and third crosses is more I would venture to say than any of us can predict.

Stock Journals the world over have been drumming into the heads of stockmen from time immemorial that it is essential to use the best *pure bred* bulls that the individual can afford to buy. In fact it is the first principle in cattle breeding, and why that principle should not apply to this country as well as the rest of the world I fail to see.

I think that the ranching of cattle in this country is going to be a bigger problem than most men anticipate for at least three reasons, viz. :—

(1) We have a very mixed lot of cows to breed up from; there is what is called the Colonial cow (generally a cross bred), the Mashona, the Angoni, the German East African, and the Africander, and other northern cattle.

(2) We have an inferior grass which can only be improved by fencing and paddocking.

(3) Late rains, and unless the ranch is a sand veldt one, no young grass until October or November.

Now if we are to compete with other countries in the export trade, or progress in this line of business, we must have an animal that matures quickly on our natural pasture; by that I mean a bullock that can be sold to advantage at 3 years old and not have to wait as in the case of the Africander until 6 or 7 years old.

My object in writing this article is not to unduly criticise my fellow-stockbreeders. I regret to say that I am one of the last who can afford to throw stones. If no mistakes are made nothing will ever be learnt; but I think the B.S.A. Co. are too apathetic in this matter and seem to me to be blind to their own interests, in failing to pay more attention to the cattle industry.

We have a tobacco and mealie expert and surely the cattle breeding industry is not secondary to either of these. I will go further and say that unless the Government take some steps to advise, and in some way supervise the breeding of beef cattle in Mashonaland, their neglect will prevent us from building up an export trade or even compete with the rest of South Africa.

I shall not suggest an experimental stud farm because that seems to be the "Bete noir" of the Administration, but I would suggest that the Government get together a few heads of cows of the undermentioned breeds:—Mashona, Matabele, Angoni, German East African Cross these with *pure bred* Pedigree beef bulls. (The only outlay to speak of would be the bulls and their keep).

Place these animals in the charge of a cattle expert, or whatever he may be called, and let him by systematic crossing and breeding up endeavour to evolve a beef breed suitable to this climate and pasture.

To import different bulls and sell them to farmers who have not quite made up their minds as to what class of animal they intend to breed is a waste of time and money; but if farmers could be taken to the cattle station and shown how the different crosses were growing out, and they could see the mistakes as well as the successful crosses I feel sure that the Government would have no

difficulty in convincing men of how to, at any rate, set about breeding cattle.

Now is the time to take the thing in hand, when we are a small and young community and with but few cattle in the country. Hundreds of men are coming up to Rhodesia, who have been breeding beef cattle in other countries and these men naturally will try and breed the same class of animal here. Now I fear that not all the beef breeds will thrive equally well in this country, and these men who have bred cattle elsewhere are bound to make mistakes—which would be to a great extent obviated if some such experiments as I propose could be carried out.

I trust that these remarks of mine will lead to further discussion on the part of farmers. Finally I would impress upon stockowners to use *pure bred* bulls. It is impossible to get decided crosses if mongrel bulls are used; but do not turn a good pure bred bull out amongst the herd to take pot luck, and be disappointed because he does not keep in the condition of a Mashona animal. A good beast is surely worth feeding morning and evening.

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## Feeding Imported Cattle.

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Considering the number of animals that are now being imported from oversea for breeding purposes some attention is due towards making as suitable arrangements as possible for receiving them and keeping them in health.

To this end it is useful to know as much as possible about the conditions and the nature of the feed on which these animals have been reared.

In Britain where pedigree stock are kept and the bull calves reared for sale, these calves are suckled on their mothers until seven or eight months old.

They get the whole of the mother's milk, which amounts to two or three gallons a day. Before weaning they have already been receiving linseed cake—about a pound per day—and this is gradually increased to two pounds together with sliced turnips or mangolds and as much hay and straw as they like to consume, until they are taken away from the mothers.

If this happens in the early summer they are turned out to grass usually on to a field of mixed clover and rye grass or as rich a pasture as possible, but do not mix with other animals.

If the weaning takes place in autumn they often get green forage crops at first such as vetches, clover, rape, etc., for a short time along with linseed cake, when afterwards they are put on to turnips and straw together with linseed cake and frequently a little hay, and this is continued until the grass comes, when they are turned out in the usual way and only sometimes receiving an allowance of cake daily.

In the rearing of bull calves starchy foods or those containing much sugar are avoided, and nitrogenous foods given as much as possible.

While the rearing of other calves may be carried on by many different methods the rearing of pedigree stock everywhere in Britain does not vary much from the foregoing.

~~During all the~~ time they get plenty of fresh air and exercise, this being an important point in rearing.

In so far as it relates to feeding the animals after their arrival in Rhodesia it will thus be seen that there is nothing in the home feed that differs very much from what may be had here. The turnips and linseed cake are the only two items that are not very generally used here.

With regard to turnips they are not so essential as is generally supposed. Pumpkins make a very good substitute, while mangolds are a crop recognised to grow well in all parts of the country where they have been given suitable culture.

Then linseed is a crop well known to succeed. It has not been grown to any extent hitherto since there has been no great demand for it.

Farmers, however, who are importing animals could do nothing better than sow a few acres for their own use since there is no grain that at all equals it as a bone and flesh former and as a health giver to cattle; while besides it is what the animals have been used to and brought up on.

Hay is an article that is abundant and ought to always be here of a quality quite equal to what it is in Britain or in any other country.

It has been observed and noted by several who have had experience in hay feeding both in Britain and in Rhodesia that the hay grown here, if harvested at the proper time and in the right manner has a laxative effect on cattle, as opposed to a costive tendency following on feeding largely on grass and clover hay in Britain.

There is a good deal of choice among other suitable winter foods. There are many farms on which green barley will grow without irrigation if sown in March or April on vlei land which is too wet to carry a crop during the rainy season, and the same with oat forage. Teostinte is also an excellent green food, growing without irrigation and keeping green well into the dry season. Paspalum affords a green pasture right through the dry season, and the same with Burnett grass.

Then Velvet Beans cut green make an excellent forage when dried and kept for use.

Where irrigation is feasible, lucerne, oat forage, rape, etc., can be grown in abundance at any season.

A very few acres of one or more of these crops would meet the requirements of all the imported animals on a farm in so far as suitable feed is concerned during the winter months, while at the same time all well bred animals require equally good usage.

There is a difference between fattening animals for the butcher and feeding animals for breeding purposes, and herein it happens that mealies are objectionable for breeding animals since they contain too much starch.

In such cases where it happens that mealies must be fed because there is nothing else, then it is better to give them crushed and steeped in water for twelve hours, or even steep whole mealies that time or longer. This is far preferable to giving mealie meal—the ground article, since cattle like something to ruminate upon.

When put on to grass imported animals should be put on to a piece of land that has been recently under cultivation, such as a small paddock made where mealies had been grown the season before. The grass that comes up is much more succulent than that on the raw veldt and there is another great advantage that cultivated land never carries any ticks.

It is to be carefully observed that the means of properly feeding imported animals ought to be the first consideration and no losses ought ever to occur in so far as articles of cattle consumption are concerned.

Linseed, perhaps the most important one, is sown in January just after all the mealies are planted.

Land that will grow a good crop of mealies will also suit linseed. It requires no irrigation nor is it affected with rust or any other trouble.

About 6 to 8 lbs. per acre is sufficient seed, as it is sown much thinner for seed than when intended to be grown as flax. The seed is used crushed but where this is inconvenient it may be boiled whole over a night and some of the oil skimmed off, when the whole settles into a jelly-like mass and is very appetising for stock. The size of the animal will regulate the quantity, but about four or five pounds per day is about an average that should be given.

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## **The "Velvet Bean" in Rhodesia.**

By J. S. LOOSLEY,

Coopers Farms, Sandown, Bulawayo.

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Having in view the need of the Rhodesian Farmer and Dairy-man for a reliable and easily grown Winter Cattle feed, the following are some memos made and collected by me relative to practical trials of this valuable crop in South Africa, and especially in Southern Rhodesia.

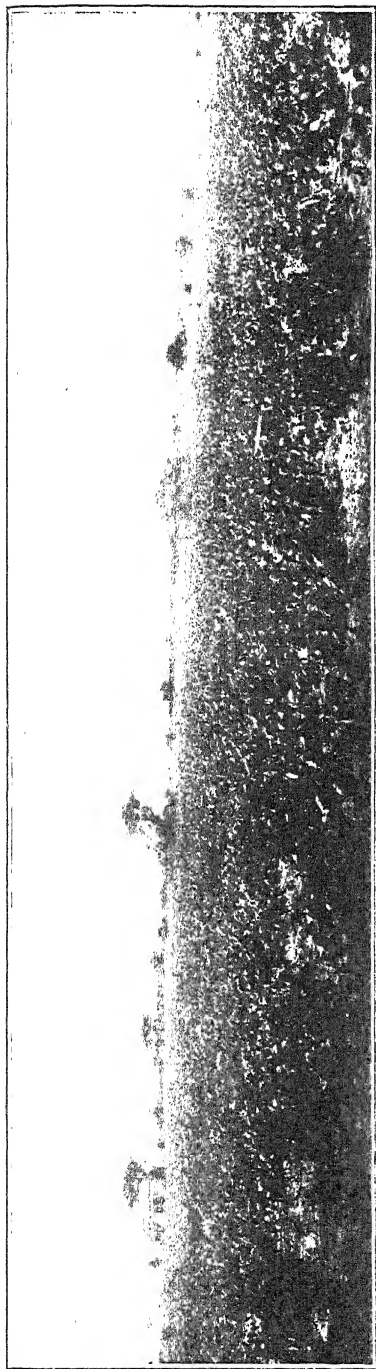
The seed used by me on Coopers Farms, was obtained from the manager of a large estate in the Transvaal—brought originally by this gentleman from Florida.

First of all his remarks and experiences will be of value, and he says: "We have grown the velvet bean in the Transvaal for the last three seasons with great success. The forage constitutes an excellent fodder for all classes of stock, and is particularly valuable as a winter food.

"The crop grows well on dry lands, and appears not to suffer much from drought, and it also acts as an excellent recuperative agent for exhausted soils.

"When the ground is in fit condition, the beans are set in rows two feet apart, and the same distance between the beans; a mealie planter does the work well.

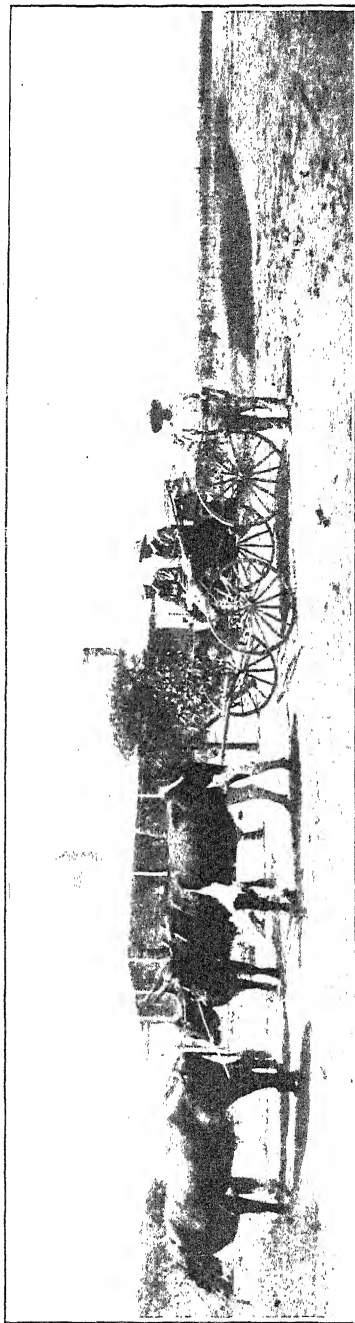
"The cultivator should be run between the rows when necessary, until the vines have thrown out the runners.



*Photo by]*

Field of Velvet Beans at Sandown, near Figtree.

*[J. S. Loosley.*



*Photo by]*

The Homestead, Cooper's Farms, Sandown.

*[J. S. Loosley.*



"After this the beans will keep the weeds down by forming a thick mass over the whole field.

"The beans grow in clusters and if the crop be required for ensilage or forage, it should be cut when the cluster nearest the roots is quite young, and about  $1\frac{1}{2}$  to 2 inches long. I generally make wind rows of the beans, and after turning them until they are quite dry, bale.

"A light sandy soil suits them best, and it does not matter how poor the soil is, naturally the crop enriches the ground very much.

"When green, no animals will eat the crop; even locusts leave it alone. No irrigation is required, and the beans will stand a lot of drought. Seeds can be planted up to December. The forage is very fattening; sheep eat it readily in the winter time and thrive well on it. I have tried it with the Persian sheep on the farms under my charge. The manager of a large dairy in Pretoria states that it increased the yield of milk one bottle per diem per cow.

"It takes about half a bushel of seed per acre, and the yield runs about two to two and a half tons of dry forage per acre.

"Dr. Nobbs on a recent visit to Sandown examined this crop, and was most enthusiastic at the results obtained, the growth of the nodules on the roots being remarkable.

"And for the improvement of the soil stated that the crop should be ploughed in when coming into full flower, not later, and should be buried say 6 inches or 8 inches in clay soil, and 8 inches or deeper in sandy soil. The nitrogen stored up in them by virtue of the nodules then becomes available to subsequent crops."

With the information given above, and with the full records given below as to American methods and results, it will not be necessary for me to go fully into details of results obtained at Sandown.

They have been most encouraging, and the forage obtained is most valuable.

It is specially valuable to Rhodesian farmers because it is a crop that can be reaped under the worst conditions—such as a locust visitation or a drought, which we get sometimes.

When green nothing touches the velvet bean, neither cattle nor any live stock, nor locusts, beetles, hares or game.

When dry—as forage—all animals, and especially Cattle, eat it readily, and seem to prefer it to any other kind of forage, and undoubtedly thrive upon this food.

A small quantity of feed—night and morning—is sufficient to keep cows in full milk and in condition, with the ordinary veldt grazing in the daytime. Results have proved that with this forage and reasonable shelter and shedding—as a protection from the cutting cold winter winds—cows can be milked throughout the year, without harm to the calves.

I can confidently recommend the Velvet Bean to Rhodesian farmers, who require a winter forage for their cattle, as the very best they can grow, and with the undoubted increase of milk of not less than one bottle per cow per day, it must be one of the best investments possible for any farmer.

The amount of seed used by me per tested acre was 18 lbs. and the return of dry forage, planting in January, not heavy, but most useful. The past season has, however, been an abnormally dry one, and as it is quite definitely understood that this bean, which matures rather slowly, should be planted not later than the end of December, there is no doubt a very heavy crop would be obtained by planting as follows:—

Plant not later than December 31st 16 lbs. of seed to the acre, in rows 4 feet apart, and the plants 2 ft. 6 inches apart in the rows.

Fertilizers are too expensive in Rhodesia to be considered with this crop—especially as it grows in any soil.

Cultivate well and until the runners begin to interfere (the Velvet Bean is much like the Kafir Bean, but the runners are much more luxuriant).

Reap just as the bean pods have been fully formed, and when the crop is in full growth, and just as the beans are beginning to grow in the pods.

Cut by native labour with a sickle, cutting straight through the matted mass, placing two rows together, and thoroughly drying in wind rows. Bale if possible in the field, or otherwise a large quantity of the leaves will fall off. A good plan is to have a baler on a wagon, travelling along the rows of dry forage, and forking direct into the baler.

For green manuring one of the best and most economical plans is to plant the Velvet Bean between the rows of mealies, immediately after the last cultivation, this can be done by fastening a single row planter behind the cultivator, the two implements being pulled by the same team (two oxen or a mule).

The accompanying photograph of the Velvet Bean lands, and the crop growing at Sandown—about half grown—will be of interest.

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### **Experiments with Grasses and Forage Crops, Government Experimental Station, Salisbury.**

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A number of grasses and forage crops were put down during the season, 1907-8, some of them being new to the country, the trials being with the view of testing their practical utility for growing as stock feeds.

The following are some notes on the results given so far:—

*Californian Manna*.—Was sown Dec. 23rd, 1907. It came up well and yielded a crop of forage amounting to 3,600 lbs. per acre.

*Old Man Salt Bush and Aust. Salt Bush*.—These were sown Dec. 18th but never came up. It is now recommended that Salt Bush seed should be sown in beds and afterwards planted out.

*Sativa Vetch*.—Sown Dec. 18th. This crop came up very well, yielding a good crop, while animals are very fond of it.

*Scarlet Vetch*.—Sown Dec. 18th. Grew well taking a good hold on the ground. Stock not paying much attention to it here however.

*Cox Clover*.—This clover was sown Dec. 28th and has made a very close stand in the rows. The roots have penetrated already to a great depth. The clover is still fresh and green (July 20th). On examination nitrogen assimilating nodules on the roots are awaiting as yet but this crop should be left over another year.

*Italian Rye Grass*.—Sown Dec. 28th. It appears to keep the ground well, being still fresh and strong (July 20th). It also should be left for another season.

*Perennial Ryegrass*.—Sown on the same date as the previous. Has not done well. It came up very close but as soon as dry weather set in it fell away.

*Sheeps Parsley*.—Sown Dec. 28th. It has grown luxuriantly only animals are not taking to it readily. It is still fresh and green (July 20th).

*Rib Grass*.—Sown Feb 4th. Although only getting one shower of rain it came up strong and has proved an excellent drought resister. It is quite strong, fresh and green up to the present and looks promising to carry right through. It is not a favourite with the stock about.

*Burnett*.—Sown Dec. 22nd. This is the most luxuriant at this season of all the plants. It yields a good pasture right through the season when scarcely anything else is growing. It is easily cultivated only animals at first are not fond of it, but they take to it when they begin.

*Prairie Grass*.—Sown Dec. 23rd. Keeps the ground well. It is still growing and has a fresh appearance (July 20th). Stock very fond of it.

*Sulla*.—Sown Dec. 23rd. Grew strongly and looks fresh and green. It is not a favourite as yet with animals.

*Tree Lucerne* (Tagasati. Japanese).—Is a tree-like shrub which grows about twelve feet high. It has not been long planted out here but already it has got a hold and promises to come along. It is a good drought resister and if it succeed here it will be a valuable addition to the edible shrubs in Rhodesia. It is planted six feet apart.

*New Zealand Cocksfoot*.—This fine pasture grass has made a good stand. It was sown on Jan. 16th. It bids fair to carry through the dry season when next year will determine its qualities and whether it will command further attention being given to its culture.

*Paspalum Dilitatum*.—Sown on Feb. 12th in rows 3 ft. apart. Seed came up well making a good stand. At this date (July 20th), the plants have spread out one foot in diameter. Growing fresh and strong while all animals are fond of grazing upon it. It was sown at the rate of 5 lbs. per acre. The soil is a dark heavy loam having some bottom dampness.

*Pearl Millet*.—Has done very well. It was sown Jan. 4th and is valuable as a forage crop since it keeps green till towards the end of May.

## Results of Mealie Trials, Government Experimental Station, Salisbury.

During the season, 1907-8, certain experiments were conducted with different varieties of maize, planted at different distances apart, with the view of ascertaining whether any one showed a superiority and what was the best distance apart to plant.

The plots were 1-4th acre each and the maize was all planted on the same date, Nov. 20th, 1907. The soil was a deep soft loam of a yellowish red colour—what may be considered good average mealie land.

Variety of Maize.	Distance planted. ft.	Selected Cobs. lbs.	2nd quality Cobs. lbs.	Total. lbs.
Yellow Hogan ...	3 × 1	440 70 C.	330 70 C.	740 140 C.
" " ...	3 × 1½	340 70 C.	230 57 C.	600 M. 570 127 C.
" " ...	3 × 2	400 70 C.	230 50 C.	443 M. 630 120 C.
Golden King ...	3 × 1	280 75 C.	225 55 C.	510 M. 505 130 C.
" " ...	3 × 1½	210 40 C.	245 55 C.	375 M. 455 95 C.
" " ...	3 × 2	260 55 C.	260 55 C.	360 M. 520 110 C.
Austins Yellow Dent ...	3 × 1	185 35 C.	285 50 C.	410 M. 470 85 C.
" " " ...	3 × 1½	175 40 C.	250 50 C.	385 M. 360 90 C.
" " " ...	3 × 2	175 30 C.	230 40 C.	270 M. 405 70 C.
				335 M.

Variety of Maize.	Distance planted. ft.	Selected Cobs. lbs.	2nd quality Cobs. lbs.	Total lbs.
Chester County Mammoth Field	3 x 1	100	380	480
"	"	15 C.	60 C.	75 C.
"	"			405 M.
"	3 x 1½	140	205	345
"	"	20 C.	50 C.	90 C.
"	"			255 M.
"	3 x 2	160	275	435
"	"	35 C.	42 C.	77 C.
"	"			358 M.
Virginian Horse Tooth ...	3 x 1	370	350	720
"	"	40 C.	50 C.	90 C.
"	"			630
"	3 x 1½	365	230	595
"	"	55 C.	35 C.	90 C.
"	"			505 M.
"	3 x 2	220	170	390
"	"	40 C.	40 C.	80 C.
"	"			310 M.
Hickory King ...	3 x 1	155	160	315
"	"	25 C.	20 C.	45 C.
"	"			275 M.
"	3 x 1½	200	150	350
"	"	25 C.	20 C.	45 C.
"	"			305 M.
"	3 x 2	115	120	235
"	"	12 C.	15 C.	27 C.
"	"			208 M.

It must be noted that the Virginian Horse Tooth and Hickory King 3 x 2 were planted near a public road and a considerable portion of the crop was abstracted.

A few bags of these mealies are for sale for seed at the price of 20s. per bag in Salisbury; cheque to accompany order.

## Manurial Experiments in Maize Growing at Premier Estate, Umtali.

The results of the application of mineral manures as affecting the weight of mealies per acre having been now ascertained they are now given as follows:—

Plot "B."

Per acre.		Mealies. Lbs. per acre.
Lot No. 1.—	200 lbs. Superphosphate 100 lbs. Sulphate of Ammonia	1,850
" 2.—	200 lbs. Superphosphate	1,950
" 3.—	100 lbs. Superphosphate 50 lbs. Nitrate of Potash	2,280
" 4.—	200 lbs. Superphosphate 100 lbs. Sulphate of Potash	2,580
" 5.—	400 lbs. Safco	2,550
" 6.—	100 lbs. Safco 100 lbs. Nitrate of Potash 100 lbs. Superphosphate	2,600
Check plot unmanured alongside		1,500

The chemical analysis of this soil was as follows:—

	Per cent.
Insoluble residue ... ..	71.5
Iron and Alumina ... ..	20.00
Carbonate of Lime ... ..	0.20
Phosphoric Acid ... ..	0.08
Potash ... ..	0.16
Loss on Ignition ... ..	8.50
Soluble Humus ... ..	3.00

These results would seem to indicate that the soil is greatly benefitted by applications of Superphosphate, Potash and Nitrogen.

The most economical results are obtained in Lot 3 which gives an increase of 780 lbs. mealies from an application of 100 lbs. Superphosphate and 50 lbs. Nitrate of Potash.

Although the analysis does not show any marked deficiency in either of these bodies yet fresh applications have a more energetic effect than what is already in the soil, much of which being in a locked-up condition.

## Rhodesian Tobacco at the London Exhibition.

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The Tobacco Colonial Quarterly in an article on the London Exhibition of Colonial tobacco held at Westminster in March makes special reference to Rhodesian grown tobacco as follows:—

### THE BRITISH SOUTH AFRICA COMPANY.

The British South Africa Company, 2, London Wall Buildings, E.C., were exceedingly well represented by what we consider the very best individual show of Colonial tobacco which has ever been seen in London. Special pains had been taken to show what Rhodesia has done, and can do, in the way of tobacco cultivation, and the tobacco was shown in all forms. Especially notable were the bales of leaf fresh from the Rhodesian Government tobacco warehouse at Salisbury. These were crammed with the most "classy" leaf which one might wish to see. The total weight of tobacco shown must have scaled upwards of a ton, and whether the type of leaf was Turkish or Virginia it all showed the greatest promise, and that the days of a commercial supply on a big scale for the British market are close at hand. The staging work had been effected under the personal superintendence of Mr. Bromwich, the courteous curator of the South African Company's Museum at Finsbury Circus, with skill and care. The open bales which were shipped off specially for the Exhibition were a grand sight, and should form in themselves a silent, yet eloquent, call to sturdy and intelligent youngsters such as Rhodesia is able to employ as tobacco planters. Our representative understood that one of the bales was from the first crop off particular land by an enterprising farmer. When such a fact is known, and the quality of the tobacco considered, the goal of a large future export trade for Rhodesian leaf is brought very close. Some beautiful coloured and fine textured leaf from Turkish leaf was observed. Those who have smoked cigarettes from it will at once admit that the leaf has something more valuable than colour, viz., good flavour and first-rate burning

properties. In our opinion it would not be a false move on the part of any tobacconists who want a window magnet to attract the passer-by to stage a generous sample of these Rhodesian cigarettes with a properly-worded window bill. The real importance of Rhodesia to the tobacco confraternity is that it is just about as sure to supply cigarette tobaccos to the European markets as anything can be sure. We do not think everybody realised this at the Exhibition, but such displays disseminate a knowledge of the resources of the country, and this is the first step towards due encouragement being meted out to the beginnings of a giant industry on British soil. The following is a list of the exhibit in detail:—

British South Africa Tobacco Plantations, Ltd., Hunyani, near Salisbury.—Bright leaf, "sublime" smoking; pipe leaf, mixture; cigar leaf "sublime" Turkish and Virginia cigarettes. St. Aiden's Mission, near Bulawayo.—Bright leaf, Turkish leaf, flue cured. H. and W. J. Long, Selukwe, S. Rhodesia.—Bright and dark leaf. J. Rayner.—Turkish leaf (1st crop). Barker Bros., Umgusa, near Bulawayo.—Turkish leaf, in bales and rounds. Mashonaland Agency, Ltd., near Bulawayo.—Turkish leaf in bales and rounds, Turkish leaf. Inyoka (Rhodesia) Tobacco Company, Ltd.—(First crop). Matabele Central Estates, Ltd.—Turkish leaf. J. N. Leony, near Bulawayo.—Turkish leaf, flue cured. H. H. Marriott, Mazoe, S. Rhodesia.—Bale of bright, rich Virginia, 1907 crop, bale of medium bright Virginia 1907 crop. W. J. Briggs, Mazoe, S. Rhodesia.—Bale of medium bright Virginia, first crop. G. W. Clark, Mazoe, S. Rhodesia.—Two bales bright cigar leaf, 1907 crop. Cigars.—S. Koefman, Salisbury, S. Rhodesia. Pipe Tobaccos.—"Q.E.D.," Salisbury Tobacco Company, Salisbury, S. Rhodesia (manufactured in Rhodesia), "Matabele Mixture," manufactured in London from Rhodesia grown leaf. Tobacco manufactured and used by natives of S. and N.W. Rhodesia; this is ground and used as snuff principally. Four years ago saw the beginning of the tobacco industry in Rhodesia. There is now a Government tobacco warehouse at Salisbury, where Rhodesia leaf averaged 1s. 3½d. per lb. at the first annual sale. Rhodesian cigarettes and pipe mixtures have a big demand in South Africa. The area under cultivation is rapidly increasing.

## Notes on Tobacco Culture.

By GEO. M. ODLUM.

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### OPPORTUNITIES.

The fear is often expressed that the tobacco industry will be overdone, and so it will be as far as low-grade tobaccos are concerned, but for the Bright Virginia and Turkish types of the quality that many are now producing there need be no fear of a surplus for many a year, for the best markets of the world are open to accept these types at prices that prove remunerative to growers in other countries where the cost of production is greater than our normal cost. The annual tobacco consumption of the countries is 2,000,000,000 lbs., of which one-fifth is of the Turkish and Bright Virginia types. The demand for the better types and grade is constantly increasing, while there is a corresponding falling off in the purchase of the inferior tobaccos. At the present time Rhodesia lacks the quantity essential to profitable marketing, and there is an urgent necessity for more growers and greater acreage. Now we are but indicating the methods for other Colonies to follow, and they will reap what we have sown unless a fuller advantage is taken of our opportunities. The quality of our leaf will become better, and the cost of production less, as the growers become more experienced.

### SELECTION OF SOIL.

To be good land for Bright or Turkish tobacco, the soil must contain a large percentage of sand. The sandstone area of Matabeleland includes some excellent soils for Turkish, and, where the rainfall is sufficient, for Virginia types as well. Many of the granitic soils will grow good Turkish, but it is rarely that they are fertile enough for Virginia, although this defect can be corrected by the use of fertilisers. Among our best soils for both types are the reddish sandy loams created by the blending of granitic and Gold Belt soils; these often have both the texture and the fertility. Vlei, heavy black, or red soils grow a leaf too coarse and heavy for the market requirements, and soils containing "brack" or alkali should always be avoided. The fertility of the soils can often be fairly determined by the growth of timber or grass. All

tobacco soils should have good natural drainage, and it is of particular moment to note whether the granitic soils are underlaid with an impervious sub-soil. New lands or those freshly broken up from grass produce the brightest coloured leaf, but their use is conditional on their being worked up to a perfect tilth before planting time.

### PREPARING LAND.

The preparation of the land should not be left until the planting season, but should be done as early as possible. Work the fields up into garden tilth early in the season, and keep them so by harrowing as soon after every rain as the condition of the soil will permit. Many fields are checked in their growth by the fact that the soils do not contain sufficient moisture, which would not be the case if the rainfall had been conserved by careful tillage. Do not be deceived by the thought that surface cultivation causes a loss of moisture during dry weather; it has the opposite effect. Cultivation is one of the secrets of success in tobacco culture, as well as in any other crop culture, and it is just as important before planting as afterwards.

It is possible that your lands may be full of insects, and there is no better way of cleaning them than to keep flocks of turkeys and fowls where they can follow the implements and pick up the caterpillars and grasshoppers. It is cheaper to fight cut-worms and grasshoppers before planting time than afterwards.

### MANURES.

Kraal manures are often dangerous to use, because of the resulting insects, weeds and disease. It is more satisfactory and cheaper in the end to use the special tobacco fertilisers. A stock of these should be secured at the rate of 400 lbs. an acre for poor lands, and 200 lbs. an acre for better soils.

### BUILDINGS.

Send to this office for plans of flue-curing barns. Bricks for all buildings should be made before the commencement of the rains.

## SEED.

It is a mistake to use local seed, particularly of the Turkish varieties, for there is a deterioration from year to year. Order imported seed from this office, and do not risk low-priced crops.

## FORESIGHT.

You will require plant-bed covering, seed, fertiliser, needles, twine, sticks, and baskets, and loss may be prevented by ordering these at once.

A special Tobacco Bulletin will be issued each month throughout the season, and will be mailed to all who request their names to be placed upon the list.

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**Oven for Seasoning Native Wood.**


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In an article on the "Cattle Industry in Rhodesia" appearing in the June number of this Journal it was mentioned that native poles could be rendered more durable for fencing purposes by heating them to a high temperature in a specially built oven.

In response to inquiries about how such an oven is constructed we now give a sketch plan along with the main particulars.

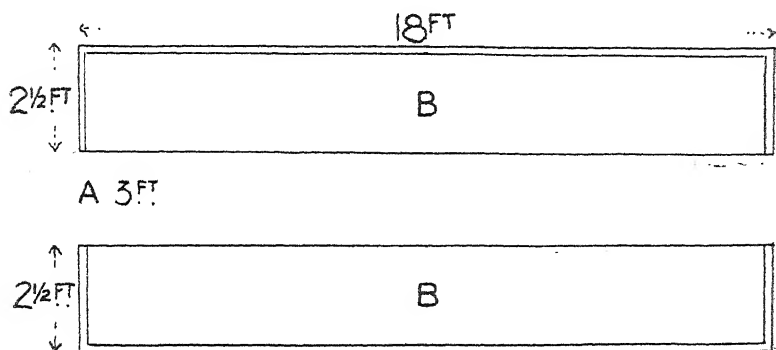
The idea embraced is to subject the wood to a great heat without charring or setting fire to it.

When on a large scale and for very heavy wood this is accomplished by drawing very hot air through an oven or kiln by means of a tall chimney, but for ordinary purposes a much simpler and more easy construction, is the one here given.

The oven or kiln should be about 18 feet long, or sufficient to take in two lengths of poles, and eight feet wide.

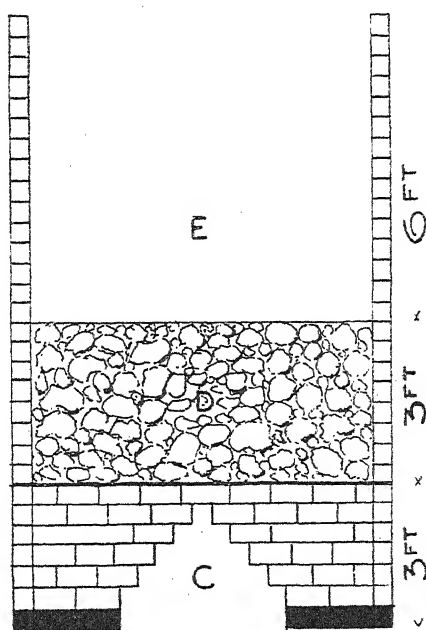
The flue is built right through the centre—a small arch built like for burning bricks—about 3 ft. wide and 3 ft. high in the centre. Stones are preferable for building this if they can be had as they will stand the fire much longer.

The side walls and the ends should be built first up to the height of six feet, and the whole internal space up to this height should be filled with rubble stones thrown loosely together, and a covering of clay or dagga on top.



Ground Plan of Oven.

A A flue, B B space filled with stones up to six feet.



End Section.

C flue, D space filled with stones, E chamber for poles.

Then the walls all round should be raised a further distance of six feet, forming a receptacle for the poles to be treated.

A narrow opening should be left at one end for tiling and emptying, but to be built up with each fill.

The walls all round should be 20 in. thick if built of stone and brick, and half in the upper part if built of brick, but the lower part should be thicker.

The kiln is fired in the ordinary way, the same as in brick burning, only in this case there is three feet of rubble stones between the fire and the articles to be heated. Care should be taken to have a few inches of clay on the top of the stones in order to prevent live heat from penetrating through.

The fire should be begun slowly that the poles may be heated gradually to the heart. They will sweat profusely, when the heat can be raised and continued until vapour ceases to come off. When this is observed to be the case the object sought for is accomplished and the fire may be withdrawn and when cool the poles can be emptied out, making room for another fill.

No covering is required on the poles inside the kiln the heat on the top being ample.

After the first trial it will be seen whether the heat has been too great, and if this should be so another foot of stones can be added coming between the fire and the poles.

The poles should be barked before treatment. The process will take about four days for each fill.

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## Vegetable Fibres for Rhodesia.

By F. EYLES.

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### Part II.

Being continuation of article published in the *Rhodesian Agricultural Journal*, April, 1908.

Subsequent to the appearance of the first part of this paper in the *Agricultural Journal* for April the June number of that Journal has been issued containing a somewhat ill-natured criticism of my contribution to the subject under consideration.

Therefore for my own sake, as well as for the sake of the readers of the *Journal* who are unacquainted with the

author of the letter referred to, and so do not know what value to place upon his opinions, I must preface my remarks by an explanation of my reason for venturing to open a discussion on the question of fibre cultivation in Rhodesia, and further I must briefly reply to such criticisms as call for answer.

I am accused of having "a good deal to learn." Frankly that is precisely my position. I am a learner and hope to be a learner to the end of my life, and I address myself solely to men who also wish to learn. Further, I believe there is nothing in my original essay to indicate that I arrogate to myself any expert knowledge on fibre cultivation, and certainly I cannot be charged with claiming attainment to that lonely and hopeless pinnacle of finality of knowledge which some men are unfortunate enough to reach in early life.

Such men, of whom I fear my critic is one, can neither progress themselves nor impart instruction to others.

My position is simply this. Knowing that I was making a study of the fibre question, the Editor of the *Agricultural Journal* asked me to write an article on the subject for his periodical. I demurred at first, but finally after some months delay consented to open the subject with view to elicit the views and criticisms of others. Therefore both the Editor and myself welcome every kind of criticism and in the present instance it is only the acid nature of the attack that must be deprecated.

Let me deal with some of the criticisms in detail. The major part of the letter under reply is an endeavour to impugn the correctness of my figures as to average prices of Jute.

In instituting a comparison between the prices of "ordinary" and "1st marks" Jute I may have been unconsciously and unintentionally unfair and am glad of the correction. I know nothing of the manufacturer's technical grading of Jute. With this one reservation, there is not a single sentence of my article that calls for alteration as far as present information goes.

Jute is not one of the fibres to which I have given special attention, and I dealt with it simply as one of my list of ten plants. I was glad also to be able to give figures on the best London authority confirming those of the Agricultural Department which had been disputed by the same person.

My authority was the firm of W. H. Hindley & Co., of London, and I am not concerned to defend the accuracy of their figures.

It is said I based my figures on one year's prices and that a year of famine. This is not true. The average figure, £15 2s. 6d., was based on the prices for ten years, and the £19 9s. od. figure was on five year's prices.

It is said that I "appear to think that fibre growing in Rhodesia is going to give a sudden fortune to every farmer who goes in for it."

I am unaware what ground my critic has for drawing this inference. I am innocent of any intention to deserve it, and can only say that if anything of the kind is suggested in my article I should be glad to have it pointed out.

I am asked what practical experience I have had in hemp and fibres. I presume the meaning is *growing* fibres in Rhodesia. My experience has been the same as that of other farmers—including the challenger—and that is practically nil.

I believe some of our farmers have had experience in other countries and a few have made isolated experiments in a small way locally. I sincerely hope that one effect of the present paper will be to elicit information and advice from those who, more fortunately placed than myself, have had opportunity to do a little actual work in this direction.

Regarding Manilla Hemp, we are told "it does not require a truly tropical climate"; also that "where the banana will flourish—there also I firmly believe Manilla Hemp will grow."

In support of my contention that true tropical climate is necessary, I find that in the Kew Bulletin on Fibres, p. 95, it is stated that Manilla requires a climate hot and humid and suffers severely in drought. The same Bulletin, p. 107, says it will not thrive in any country having a distinct dry season. Again, in Spons Encyl. of Arts, etc., p. 983, attention is called to the *remarkable difference* between the edible banana which grows in all tropical countries and the Manilla Hemp which has an unexplained idiosyncrasy for only two known localities in the world.

We are told that Sunn Hemp is not a Jute substitute and is coarse and brittle. If there is a special meaning attached by the trade to the term "Jute substitute" this

may be correct; but using the term in its ordinary sense, if I am in error, at least err in good company.

Matthews in his well-known book on "Textile Fibres," p. 307, speaks of Sunn Hemp as better quality than Jute in colour, strength and durability. Kew Bulletin Fibres, p. 274, says Sunn Hemp is soft and fine while the Imperial Institute Bulletin, 1907, p. 269, recommends Sunn Hemp for districts unsuitable for Jute, says it has several advantages over Jute, is prepared similarly to Jute and can be used for many purposes for which Jute is said. I therefore do not need to withdraw the phrase "Jute substitute."

The vegetable fibres of commerce may be studied and classified in several ways, all instructive.

Economically we have spinning fibres, cordage fibres, brush fibres, paper material, etc.

Botanically we have vegetable hairs, bast fibres, vascular bundles as the main divisions.

For my purpose and from the point of view of the prospective planter I prefer to adopt two divisions only. (1st) Those fibre plants yielding crops in two or more years after planting. (2nd) The fibre plants producing crops the same year they are planted. This seems a practical business-like classification, and I am confident that plants, in both divisions, will yet be grown on a commercial and profitable scale in Rhodesia.

If we will now return to the list of ten plants given in my earlier paper, we shall find that Nos. 1-4 fall under the first class:—

(1) Manilla Hemp begins to yield in 2nd year but does not give full crop till 4th year.

(2) Mauritius Hemp requires 3 years at least.

(3) Sisal 3-5 years.

(4) Bowstring said to require 3 years.

It is evident these slow growing plants could not be treated as main crops by the ordinary farmer who must look to his land for his annual income. Only capitalists or farmers having some other source of income can afford to handle either of these fibres on a large and profitable scale. And yet they are all well worth serious attention. Leaving on one side Manilla and other banana fibres, which owing to the high cost of hand stripping would probably be unprofitable at present, there remain

Mauritius, Sisal and Bowstring Hemp. These three are sure as they are slow and have many good qualities to recommend them:—Propagation easy, cultivation simple and cheap; adaptability to various soils, not refusing the poorest; immunity from locusts and similar pests; extraction by machines less costly than hand stripping and no water steeping required.

Estimated possible values are as follows:—

*Mauritius Hemp*.—Take crop at the same as Sisal, i.e.,  $\frac{1}{2}$  English ton per acre:

Laying out land, per acre plough and cultivate			
three years (say) ... ..	£	3	0 0
Transport to rail within 2s. per 100 lbs., radius			
$\frac{1}{2}$ English ton ... ..		1	2 6
Railage, $\frac{1}{2}$ long ton at $\frac{1}{2}$ d. short ton per mile,			
Salisbury to Beira... ..		0	10 1
Freight and charges to England, $\frac{1}{2}$ ton at say			
50s. per ton... ..		1	5 0
			<hr/>
		£	5 17 7
English C.I.F. value say £20 per ton or $\frac{1}{2}$ ton	£	10	0 0

Balance per acre to cover seed, cleaning, baling			
and profit ... ..	£	4	2 5

*Sisal Hemp*.—The figures for laying out, transport, railage, and freight will be the same as for Mauritius on the same basis of a  $\frac{1}{2}$  ton crop per

acre, viz.: ... .. £ 5 17 7

Taking Sisal as being worth say

£2 per ton more than Mauri-

tius, we get for the  $\frac{1}{2}$  ton ... .. 11 0 0

Leaving... ..	£	5	2 5 per acre
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to cover seed, cleaning, baling, and profit, all of which remain to be tested under local conditions.

As a set off in favour of Mauritius and Sisal the charge against these crops for laying out the land can be reduced, if the example of Dr. Sketchley is a sound one to follow and I know nothing against it.

I understand his Mauritius and Sisal are set about 14 feet apart and between the rows an annual income producing crop is planted, in his case tobacco.

Should this prove a success, then the annual cropper in addition to bringing in cash yearly will also carry a large share of the cost of ploughing and cultivating, thus reducing the cost and increasing the chance of profit on the fibre.

*Bowstring Hemp*.—Though I am inclined to think they might be less we will take the figures for cost on the same basis as for Sisal.

Laying out per acre . . . . .	£	3	0	0
Transport for $\frac{3}{4}$ English ton at 2s. per 100 lbs.		1	13	9
Railage on $\frac{3}{4}$ long ton at $\frac{1}{2}$ d. short ton per mile		0	15	3
Freight and carriage at say 50s. per ton, $\frac{3}{4}$ ton . . . . .		1	17	6
				<hr/>
				£7 6 6
Then allowing a yield of $\frac{3}{4}$ English ton per acre at £20 C.I.F. we get . . . . .		15	0	0
				<hr/>
Balance per acre . . . . .	£	7	13	6

as before to cover seed, cleaning, baling and profit.

At present everything connected with fibre growing and profits is in the air and of course the figures given above are entirely tentative and merely approximate estimate. But in regard to the three crops just mentioned it is satisfactory to know that some actual work is being done. Mauritius Hemp is already being put in by a number of farmers. Sisal Hemp plants have recently been imported by the Agricultural Department and are being distributed for experiment and report.

Bowstring Hemp is I am told being tested by farmers in the Macheke district so that in the course of time we shall have actual figures to go on as to costs and profits.

Considering that Sisal is spoken of as the chief source of wealth in German East Africa and that Bowstring is also being cultivated there with success there seems no reason to doubt that the same success can be obtained in Rhodesia.

The remaining six fibres on my list come under the second division, that is plants producing crops in one season; and I think it will be agreed that even if the margin of profit is found to be smaller than that with plants in the first division the fibres giving a quick return are likely to be more attractive to the farmer with little or no spare capital.

The crops are:—Flax, Jute, Sunn Hemp, Ramie, Common Hemp, Kanafe Hemp.

Costs and profits estimated and approximate only may be taken as follows—always on the acre basis:—

*Flax.*—

Ploughing one acre (say) ... ..	£	1	10	0
Transport (on 280 lbs.) at 2s. per 100 lbs....		0	6	0
Railage (say) 3-20ths of short ton at $\frac{1}{2}$ d. per ton per mile, Salisbury to Beira ... ..		0	2	6
Freight and carriage, $\frac{1}{8}$ th Eng. ton at 50s. ...		0	6	3
Value English ton C.I.F. (say) £24, $\frac{1}{8}$ th ton	£	2	4	9
		3	0	0

Balance per acre... .. £0 15 3

Flax in tropical countries produces better oil than in northern climates, where on the other hand it yields better fibre.

Mr. A. J. Maclaurin informed me some months ago that he had grown flax (linseed) with success and he had a sample of the seed at the recent Salisbury Show.

*Jute.*—Producing (say)  $\frac{1}{2}$  English ton per acre the cost of ploughing, transport, freight and railage on the same basis as the others, will amount to ... .. £4 8 9  
Average price £12 per ton,  $\frac{1}{2}$  ton ... .. 6 0 0

Balance ... .. £1 11 3

Jute although showing a low margin, insufficient to include any profit, should be carefully experimented with by the Government, for it is a native of the country and I think my figures for value are too low.

*Sunn Hemp.*—Yielding about 700 lbs. per acre, the cost of ploughing, transport, railage and freight being as before, the outlay per acre will mean ... .. £3 5 5  
English value, C.I.F., 1-3rd of £12 ... .. 4 0 0

Balance ... .. £0 14 7

As before stated I doubt if this would pay as a fibre crop but it may be mentioned that the plant is excellent both for fodder and for green manure besides being a leguminous, nitrogen returning crop and might be considered as a rotation crop.

*Ramie*.—Yielding (say) 250 lbs. first year.

On the same basis the outlay will amount to	£2	2	7
1-9th English ton at £27 per ton ... ..	3	0	0
	<hr/>		
Balance ... ..	£0	17	5

From third year onwards yielding three annual cuts the cost of cultivation being less by (say) 10s. per acre the annual crop will amount to 750 lbs.

The outlays will now amount to ... ..	£2	17	9
1-3rd English ton at £27 per ton ... ..	9	0	0
	<hr/>		
Balance ... ..	£6	2	3

Since the first part of my paper was published and as a result of it I am in communication with the Cape Ramie Growers' Association who inform me that at last a machine has been perfected which produces clean fibre on the field. A representative of the Association is coming to this country to look for suitable land for Ramie growing. He is to stay with me for some weeks and the whole question will be gone into thoroughly.

If he can satisfy us that the machine does all he claims then Ramie has a great future in Rhodesia.

*Common Hemp*.—I have no figures as to yield per acre and so cannot estimate costs and possible profits.

*Rauafé Hemp*.—Producing 1 English ton per acre. On the same basis of cost per acre the outlay

will amount to ... ..	£	7	5	2
Price per ton in England... ..	12	0	0	
	<hr/>			
Balance ... ..	£4	14	10	

This plant crops in 90 days and possible two crops per annum might be obtained.

I hope it will be clearly understood that all my figures are approximate estimates only, but based on the best information I have been able to collect—information still very incomplete, but which has given me much trouble and taken considerable time to get together.

The whole subject is now in the experimental stage and the present paper must be regarded as merely an inquiry into the question of fibre growing for Rhodesia with a view to the discovery of those plants most likely to pay for investment.

I may also mention that at the date of my last communication from London, I was advised that the entire market for fibres was in a very depressed state, and prices were ruling at an unusually low figure. The matter, however, must be looked at from a broad point of view and general averages of values taken including both fat and lean years.

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### **Onion Growing in North-Eastern Rhodesia.**

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Mr. Herbert Johnson, Ulungu Estate, Feira, through cross fertilization and selection has grown a sample of onion that has turned out of fine flavour and excellent keeping qualities.

We may state that several inquiries have been made regarding procuring the seed and Mr. Johnson has been asked to furnish a quantity for sale to growers.

A photo is herewith given after it has been kept for months and it is still fresh and sound.

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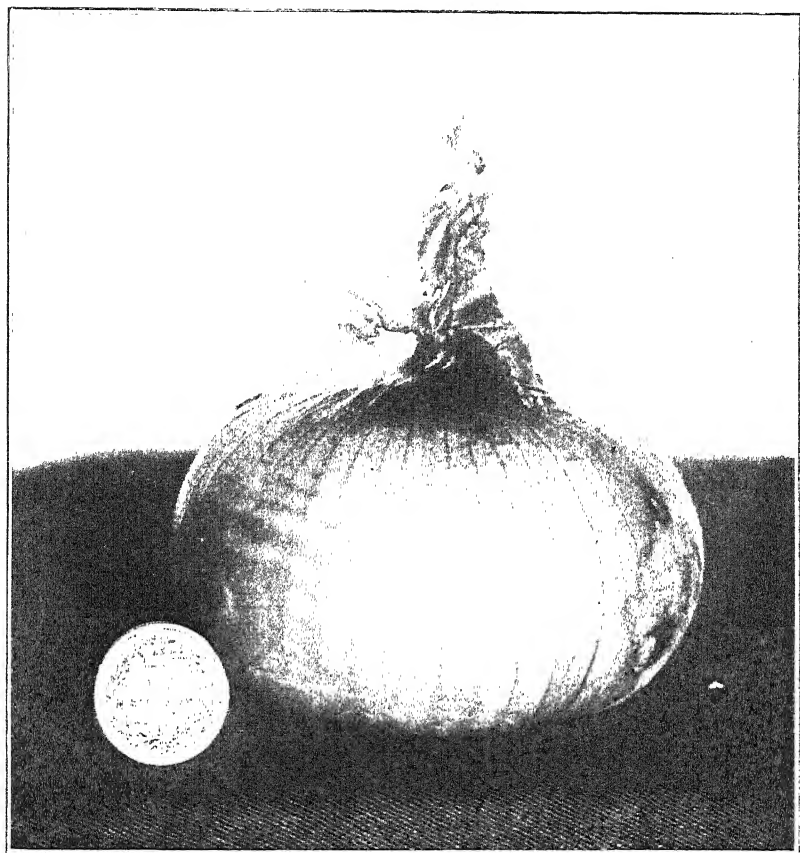
### **Aloe Fibre Decorticator.**

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A machine for extracting sisal fibre has been brought under notice that is calculated to meet the requirements of Rhodesian growers of sisal hemp. The same machine also is used for *Sansaveira Cylindrica*, a fibre plant that is indigenous in Rhodesia and in some parts growing in great profusion.

The price of this machine is £25 13s. 4d.; packing, £1 13s. 4d.; delivering to F.O.B. export steamer 13s. 4d., in all £28.

The weight of the machine when packed is about 12 to 15 cwts., but this can be split up into three handy packages. The cubical measurement of the three packages would be about 40 c. ft. total. This machine is supplied by the Eastern Landing, Clearing and Forwarding Co. Ltd., 28 Strand Road, Calcutta.



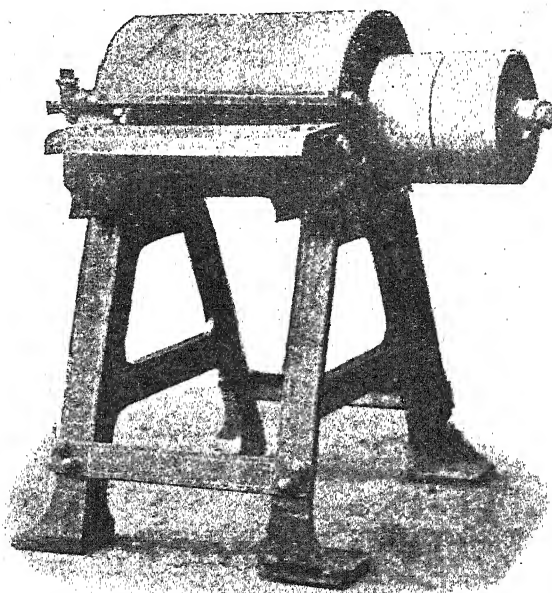


The following particulars are given of this Decorticator:—

“Length at base, 3 ft. 2 in.; breadth, 2 ft. 8 in.; height, 3 ft. 10 in. The feet have holes bored making it suitable for bolting on to sleepers thus rendering the machine easily portable and doing away with the necessity of expensive building foundations.

The total gross weight of machine fitted complete is 12 cwts.

The machine is capable of receiving two leaves at a time and with two men feeding will deal with 8,600 lbs. of leaves (*Agave Rigida Sisalana*) per diem, thus giving an out turn of 300 lbs. dry fibre.



Aloe Fibre Decorticator.

There would also be a quantity of fibre recoverable from the waste which has a considerable market value. It is advisable in order to obtain the best results to put the leaves through the decorticator as soon as possible after they are cut, and before they become dry and weedy, as in this state the decortication is somewhat difficult.

The machine requires  $\frac{3}{4}$  nominal H.P. and should be driven at 700 to 800 revolutions per minute.

The machine has been again improved, and we now recommend all buyers to have an extra lease pulley attached and to have our sprayer fitted to this, ensuring a continual run of water on the leaf at the moment of decortication.

The operation of extracting fibre is simple enough to be done by ordinary coolies and a very little experience soon enables the coolie to become an expert in the work.

The fibre after decortication requires only to be washed in water and dried in the sun to be ready for the market."

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## **Cheddar Cheese Making.**

By R. SILVA JONES, Government Dairy Expert.

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### INTRODUCTORY.

The increasing demand for information and the continual requests from farmers and others for information on Cheddar Cheese-making has caused me to write this article, and in it to explain fully, from a practical point of view, the whole of the process from beginning to end. And to make it as explicit as possible, in the hope that it may be of use to the cheese-maker and at the same time of use to the farmer who intends to start this lucrative industry, in so far as that by its simple and explicit explanation it should be within the bounds of possibility for an energetic young farmer to be able to commence cheese-making simply on this article. But still, notwithstanding this, I would always advise anyone previous to beginning cheese-making to spend a couple of weeks if possible at some farm or factory where good cheese is being made, he would then be better in a position to thoroughly understand the process without any fear of not doing what ought to be done.

First let it be understood that the process is, practically speaking, a long and tedious one, especially if one is making up small quantities daily; but if one has a fairly large quantity, the maker will always find his time fully

occupied, that he has little time to spare, and consequently does away with the tedious waits that occur during the process. For this reason it is not all men who make cheesemakers. One of the principal virtues of a cheesemaker is patience, as the whole process is one of fermentation, and one often has to wait patiently for the fermentation to increase. An impatient man would often not wait for the ferments to work, and would perhaps finish off when the cheese would be found to have suffered very much in quality when the time comes to realise on the market. The process, when once known, simply requires care and watchfulness to bring about good results, the results of one day compared with the results of another with the continual idea of improvement in quality.

The type of cheese suited for this country is undoubtedly what is termed a hard cheese, that is, one that has undergone considerable pressure during its manufacture. This makes it a cheese far more easily transported than any other kind, which is a very great consideration in this country. At the same time this type of cheese is one that takes at least three months to ripen, and is better if left a little longer. It can be kept for at least a year without deterioration, although it will, if kept so long, certainly lose a little in weight, but this is nothing in comparison to the maker's independence of the market, for he is not bound to sell at once. If a suitable market cannot be found this month it can easily be held over till the next and so on.

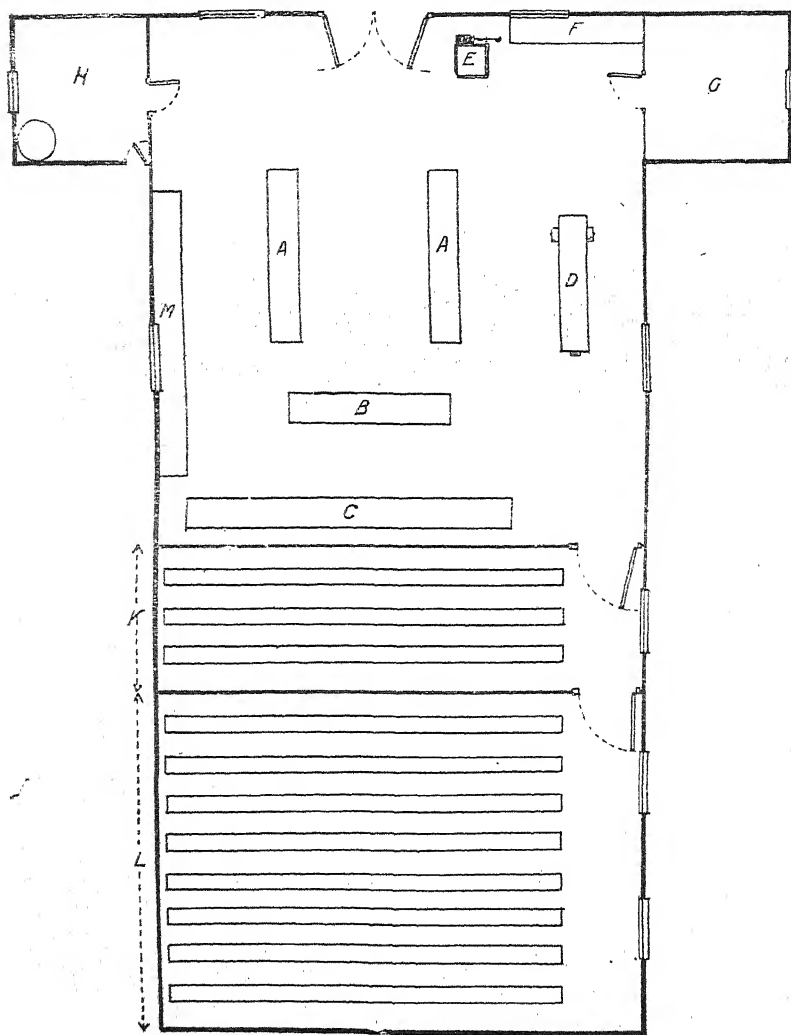
Of this type of hard cheese I think the cheddar is the most suitable to our conditions and requirements, because of its greater ease of transport. Its demand on the Colonial market, too, is greater than others, and it is the class of cheese that has been more generally studied than any other, and has consequently been more standardised in its manufacture which is a tremendous help especially to the beginner.

Every portion of the article where it permits has been illustrated to more fully help the reader to readily understand what is meant, and for the illustrations of utensils and quotations of the various sized plants I have to thank the firm of Messrs. D. E. Hockly and Co., East London, a firm which lays itself out in every way to meet the demands of the dairy farmer, not only in cheese plants but in all description of dairy requisites.

## BUILDINGS.

The buildings required and necessary for cheese-making are not very extensive, but there are some essential points to be watched in their construction. Existing buildings can often be altered and changed to make excellent making and ripening rooms.

Rough Ground Plan of Cheese-Making Dairy.

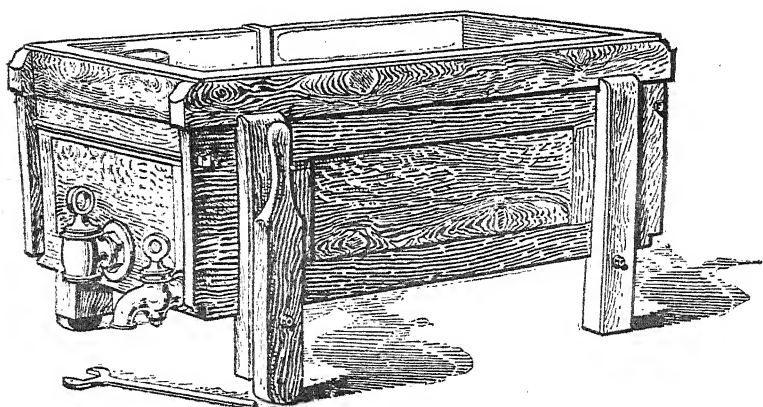


1. (A) Cheese Vats ; (B) Cooler ; (C) Presses ; (D) Movable Table on wheels to go right into both Ripening Rooms ; (E) Scale ; (F) Office Table ; (G) Store Room ; (H) Boiler and Wash-up Room ; (K) First Ripening Room ; (L) Second Ripening Room ; (M) Table for Utensils.

The rooms required are three in number, and are most convenient for working if they are all three attached and under one roof. They are the working room, ripening room and the boiler and wash-up room. The ripening room is best divided into two, that is one for the young cheese and the second for the older. One room is often made to suffice for the two and answers well, but to anyone either building or converting existing ones I would recommend the two, the reason for which will be explained later on. The position of the rooms should be such that it economises space and saves labour. A very good plan of a cheese building is shown opposite, and will be found to answer the purpose well, the size, of course, must be judged by the amount of milk treated daily when the number and size of vats and coolers, and the number of presses will have to be taken into consideration and allowed for, but the illustration will serve to show the idea of such a building.

With regard to the material used for the building, brick or stone is without doubt the best. The walls of the making room and the two small rooms can be of ordinary thickness, but the two ripening rooms require to be more heavily built in order to carry a more even temperature, and the better plan is, I think, to make a double wall with air space in between or the space between to be filled with non-conductive material, such as cinders; but I think the air space is far preferable. The walls should be high, the higher the better, with a gable roof, to leave plenty of air space above the cheese that is on the shelves ripening. With regard to the ventilation, this must be carefully attended to without causing a draught, and the ventilating holes through the walls must be placed high up above the level of the top of the shelves with a ventilator in the roof. The floor should be of cement throughout, and in the making room special attention is required to see that a proper fall is obtained to drain water, etc., off quickly. A drain should also be made below the whey outlet pipes of the cheese vats. It is necessary that the whey, when the curd has reached its proper condition, should be run off quickly. The laborious task of running off into buckets is bad and cumbersome, makes work, and is likely to cause trouble, with being spilt about in the carrying. Have the drain made so that it can run the whey off into a tank for pig feeding, which

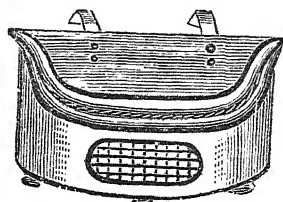
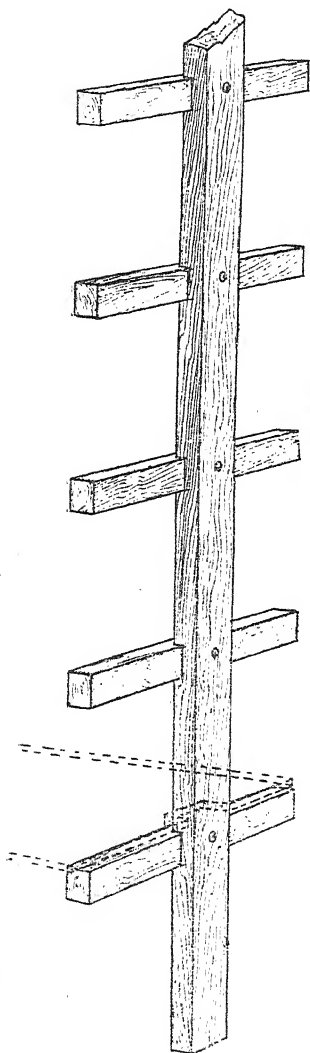
should not be closer to the dairy than, say, 50 yards, as there is always a certain amount of smell which will, if closer, be not only unpleasant but dangerous to proper and successful working. The windows should be in the ripening rooms double to secure a more even temperature, and should be so placed that the light is well thrown down the terrace of shelves, and be placed, as far as possible, so that when open they do not create a draught on the cheese. The outside should be covered with fly proof gauze. These windows should always be curtained to keep out strong light. The shelving on which the cheese stands to ripen should never be placed against the wall, but always leave space for circulation of air all round the ways, the shelves should, as shown in the diagram, run parallel up and down the room, and be of



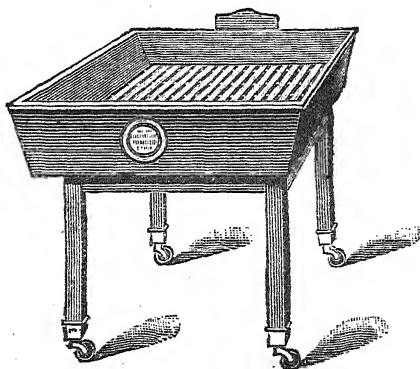
The Cheese Vat.

sufficient width apart for the cheesemaker to pass comfortably in between the rows in order to turn the cheese, and they should not be too far apart, for they serve the purpose very well for improvised steps for the one turning to stand on in order to reach the top shelves. The distance apart of the shelves will be decided upon by the size and shape of cheese made. This will also control the width of shelf, but be careful to see that each shelf is one piece of wood in width, or unless properly joined together it will mark the cheese. Whatever height of cheese is made at least three inches should be left from the top of cheese to the bottom of next shelf. A good plan is to make the bottom shelves a little wider than the top ones, to meet

any contingencies in size, when the larger cheese will then be on the lower shelves. The best and most successful structure for the shelving is shown herewith.



The Metal Strainer.



The Cooler for Curd.

#### DIAGRAM OF UPRIGHTS FOR SHELVING ARRANGEMENTS.

The upright is fastened to the floor at the bottom and at the top with cross pieces. The cross-bars are let into the uprights and bolted. The shelves are laid upon the cross-bars, but not fastened to them for ease in removal for cleaning.

In dairies where a large amount of milk is to be made up daily I would certainly recommend a small steam generator. In this case the vats can be connected up with steam for the scalding process. Steam is in every way preferable, it saves labour, and everything can be so

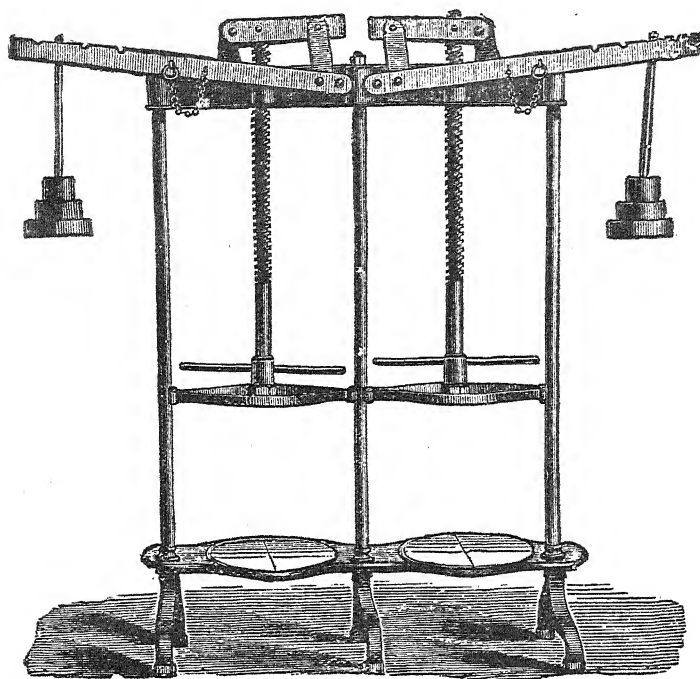
well sterilised after use. In very small dairies this may be found too expensive and cumbersome.

A very handy adjunct to the working room is a table on wheels which is so made as to go straight through into the two ripening rooms, it also saves a deal of carrying and lifting.

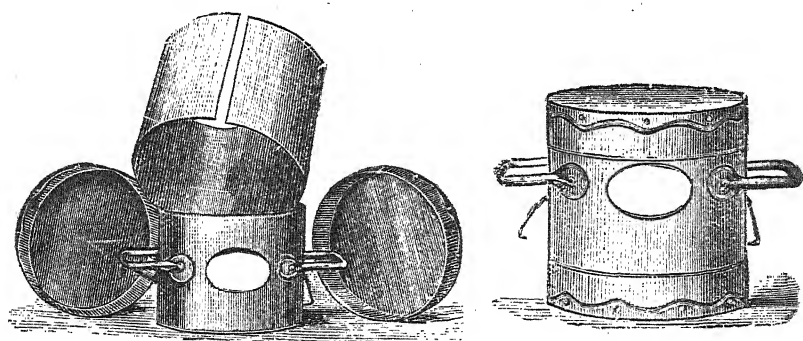
#### IMPLEMENTS AND UTENSILS.

Firstly and foremost is the cheese vat.

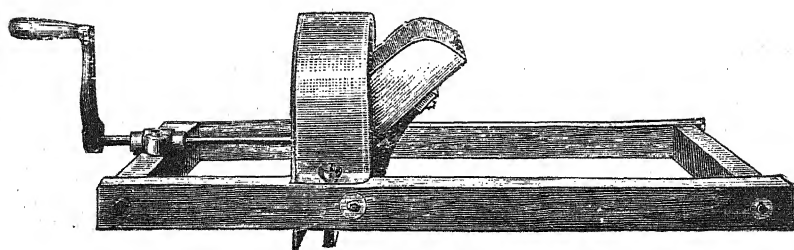
These vats are double jacketed, the portion of the vat for the reception of the milk being quite apart and separate from the outer shell, and can be removed and should be removed from time to time, as sediment often collects at the bottom. They are fitted to be used both with hot water and steam, steam from a small generator being much preferable, as it saves a great deal of labour in water carrying, and I think one has greater control over the temperature. The steam tap to be fitted close above the vat. Always see that the whey outlet tap is slightly below the level of the bottom of the vat to facilitate the letting off of whey; it must also be large, so that the whey can run off quickly and without any stoppage. The vat is also fitted with a tap for the outlet of hot water from the outer jacket, and also an outlet pipe when steam is used. An arrangement is fitted by which the vat can be tilted to facilitate the draining of the whey, and also a measuring scale, which has to be used when the vat is standing perfectly level and hung over the centre. This measuring scale requires to be tested occasionally, as sometimes the vat after continual use, sags a little in the centre, and consequently the vat will hold a little more than the measuring scale actually shows. A wooden lid is also required which can be made easily and nicely out of ordinary ceiling board, but it should be made in two halves to facilitate work. The lid should be made to fit the vat neck, as it is particularly required to keep up the temperature, and therefore requires to be close fitting. A metal strainer is also used in connection with the vats, and is made to hang into the side. A strainer, which is with the measuring scale, included in the price of the vat, fitted for straining of the whey from the vat, and is so made to be fitted on to the inside of outlet to be removed and replaced at will.



Lever Cheese Press.



Cheese Moulds.



Curd Mill.

Another indispensable utensil is the cooler which is made in various sizes to suit the size of the vat used, and is fitted with a loose wooden ribbed rack to facilitate the drainage of whey, and arrangement is made for putting in hot water to keep up the temperature of curd. An outlet plug is also fitted, as are also wheels to the legs, so that the cooler when not in use can be pushed away easily.

Over the wooden ribbed bottom a cheese cloth is always spread prior to the curd being placed thereon.

Many descriptions of cheese presses are in the market, but most of them work upon the double lever system with screw, and are continuous. For small dairies I prefer the one as illustrated, being strong and durable and with ordinary care will last a lifetime.

For larger dairies the gang presses are preferable, taking a larger number of cheese, and they work horizontally in place of vertically as with the lever presses. They are, of course, more costly to purchase.

The moulds are a very important item, and I can recommend none better than the Australian models. (See Illustrations.)

These would collapse with the cheese as it is pressed, and care should be taken that too much curd is not put into them. Practice will prove about what weight, according to the condition, of curd, to put into them. With these moulds a seamless cloth bandage is supplied, and should be used with them. This cloth in the smaller size is woven in lutes of three and it will be found much better for ease in use, if these lutes are cut separate and rolled upon a stick or on a towel roller. The cloth is then kept clean, and if the roller is nailed to the wall above the table where the moulds are got ready the benefit will be apparent.

The curd mill is one that attention should be given to, the older style of mill used which crushed the curd too much has been superseded by a newer type, which cuts the curd and does not bruise.

Two knives specially made are required, the one cutting vertically and the other horizontally.

#### TREATMENT OF THE MILK.

The treatment the milk receives immediately it leaves the cow is of very considerable importance. The whole process of cheese-making is one of fermentation, and with

a little careless handling it is so easy without even at the time knowing it to destroy any chance the cheesemaker has of turning out a good article. With anyone cheese-making themselves or purchasing milk from neighbouring farms, there should, at the beginning, be some clear understanding as to the treatment the milk is to have before it leaves the farm for the factory.

Firstly, I am a great believer in wiping the udder of the cow off with a damp cloth to remove any loose hair or dirt hanging to it, which without, will be sure to fall into the milking pail. The milkers should also wash their hands prior to milking, and at every time use every endeavour to keep foreign matter out of the milk. The milk having been taken from the cow, must be immediately aerated and cooled down, the diagram herewith shows the best utensil for the work.

By the use of this simple little contrivance, the milk will be ridded of all smells and taints, other than those aroused by contamination, and the milk will be found to keep much better, and gives the cheesemaker far more control over his work by receiving his milk in a more sweet condition. For this utensil to work most effectually, a supply of water should be at hand and be so connected as to pass into the aerator through the coil of pipes and out again as shown on the diagram.

A good cloth strainer is, of course, fixed to the top of the receptacle containing the milk on the stand. It is of no benefit to use this machine unless it is used in a good, clean atmosphere, if otherwise amongst dirty surroundings, or exposed to dust, etc., it may do more harm than good.

In the case of evening's milk the same holds good, only for the milk to be kept in a good condition for cheese-making next morning, it should be kept as cool as possible. The best plan is, if possible, to stand the can containing the milk in running water, or if that is not available, in a good body of clean stagnant water. To keep down the temperature must be the great idea, and if the milk is properly clean and well aerated, I have no fear of being able to use the milk from the night before for cheese-making, but to do it, care and attention will certainly have to be exercised, or the milk will arrive at the factory in a condition too ripe to be of any use to a cheesemaker.

No preservative of any description must be added to help to keep the previous night's milk in order to send to the factory in the morning.

The milk standing at the kraal must be protected from dust as much as possible by covering the receptacles over with a clean cloth, which will also act as a strainer.

The milk should be delivered to the cheesemaker as soon as possible, he is then far more able to control the manufacture. And on no account whatever must it be

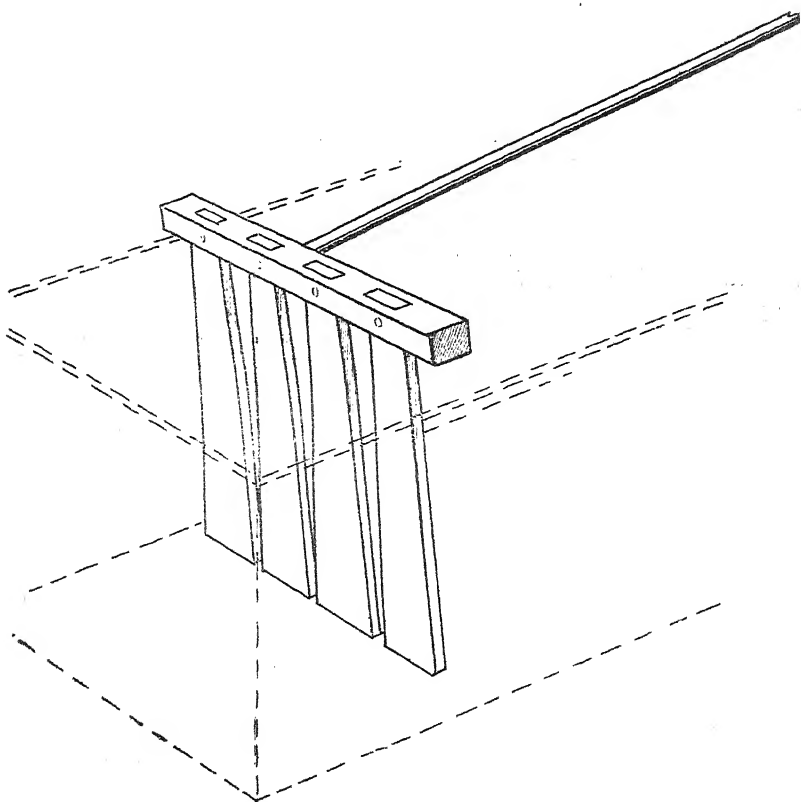
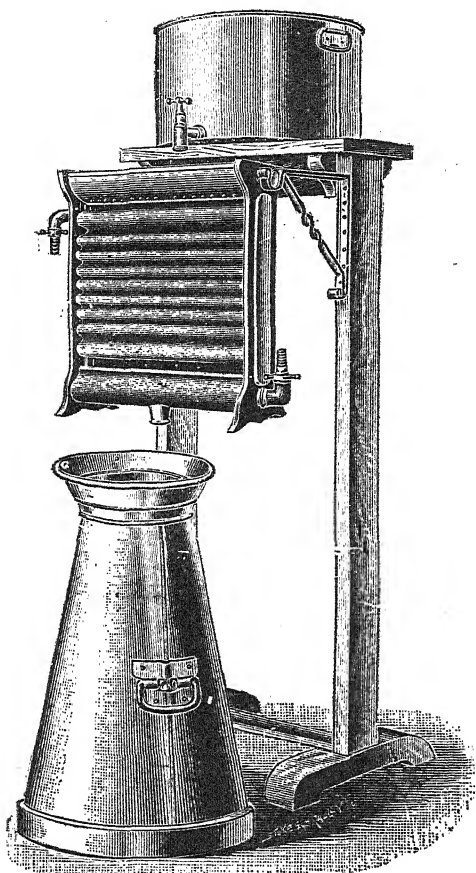


Diagram of Curd Rake.

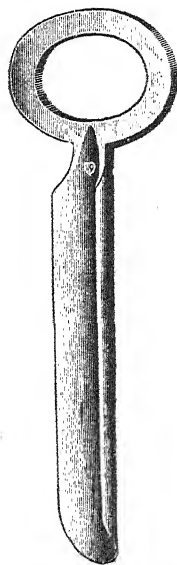
The teeth of which are to be made a little higher than the inside depth of the vat.

permissible for the can used for the conveyance of milk to be used for the whey. This is often done, and is most dangerous to the milk; besides, the life of the can is shortened on account of the action of the acidity. Cheesemakers should note this carefully, it is a common practice but should be stopped forthwith.

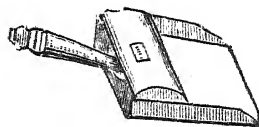
The cans of milk while being delivered to the dairy should be covered from the sun.



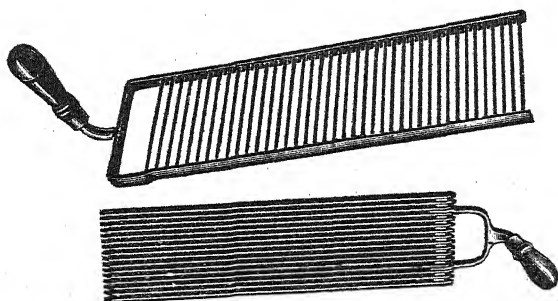
Milk Aerator and Cooler.



Cheese Borer or Taster.



Curd Scoop.



Curd Knives.

It is highly necessary and essential that in the formation of any cheese factory that a stipulation should be made that certain regulations in regard to the treatment and care of the milk be made and that they be most stringently and honestly carried out, as in the supply of pure, fresh milk lies the crux of the whole thing, and it is perfectly impossible for the best cheesemaker to manufacture an even quality cheese throughout the whole season if the milk supplied to him is not good.

According to the statistics as published by the S.A. Statistical Bureau for the year 1906, it will be seen that the importation of cheese alone into this country was enormous, amounting to 3,556,446 lbs. and £95,294 in money value, which in itself will clearly prove that in order to cope with our importations we shall have a very large quantity to turn out annually. At present for this season I do not estimate our output will be more than 180,000 lbs. to 200,000 lbs. at the most. Another most encouraging feature that I notice is that where cheese is made the consumption locally has greatly increased, and where cheese before was hardly ever eaten, now that it is made locally, it is to be found on almost every table. This goes to show that when the industry is established our consumption will far and away exceed that of the importation. Cheese is without doubt one of the most wholesome of foods, and should have greater prominence on our tables than at present, and I look to the time when it is made locally and when a good, sound merchantable article is placed upon our markets, that it will receive its proper recognition.

There is also a greater output of cheese from a given quantity of milk than of butter. One gallon of milk will produce sufficiently close for estimation, 1 lb. of cheese, whereas with butter it takes on an average from  $2\frac{1}{2}$  to 3 gallons of milk to produce one pound of butter. There is certainly more work with cheese, but I consider that where sufficient milk say 200 gallons and upwards per diem can be collected, it pays the farmer or company of farmers, to employ a man to make it, and, therefore, do away with all work attached to it.

Another very profitable side of cheesemaking is the resultant whey which forms a most excellent pig food, and pigs properly camped off pay handsomely equally well, and if not better than anything on the farm in pro-

portion to the capital invested. Pigs allowed to run at their own sweet will all over the farm never pay. They are a source of annoyance at every turn, and do far more damage in every way than the profit they bring in; but properly camped off they do exceedingly well, and I know of cases where the profit on the pigs is sufficient to pay the current expenses of the cheese factory.

New milk or "Beestings" must on no account be supplied to the cheesemaker, as, owing to its composition, it has a most deleterious effect on the process. It must be at the very least a week or ten days before it is added to the bulk, or longer, if it is noticed that up to this it has not yet resumed its normal condition. Great care must be shown by farmers in this respect, as it will be impossible for the cheesemaker to turn out a satisfactory article.

*(To be continued.)*

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### **Tuberculosis in Cape Colony.**

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Last week an outbreak of tuberculosis was discovered among the stock on Mellish's establishment, Upper Buitenkant street. Evidence of the trouble was first found in a young Friesland bull, which was being sent to Rhodesia. The Government Veterinary Department caused an examination to be made, with the result that about 90 per cent. of the Friesland stock was found to be infected. Under these circumstances the Department had no option but to put into force the Animal Diseases Amendment Act of 1906. The effect of this will be that about 70 animals will have to be slaughtered; the Government paying as compensation one-fourth of the value of the beast in a healthy state, but in no case more than £15 per animal. The value of the infected cattle is between three and four thousand pounds, nearly all being pedigree stock. In this connection the following extract from the report of the Chief Veterinary Surgeon for the Colony (Mr. J. D. Borthwick) will be of interest:

"Twenty-three outbreaks of tuberculosis in cattle have been dealt with by the Veterinary Department during the year, involving the tuberculin testing of 633 animals, 54 of which reacted, and were destroyed. It is intended

shortly to examine all the cattle in the Cape Peninsula, and, where necessary, submit them to the tuberculin test. In connection with the importation of animals from overseas, it is found that it will be necessary to quarantine and submit all imported breeding stock to the test, even although accompanied by a tuberculosis certificate, some of these animals on being tested on arrival being found to be infected with the disease."

Veterinary Surgeon Dixon reports: "When slaughtering cattle affected with lungsickness I have found on several occasions Colonial oxen showing tubercular lesions, these cases having been confined cattle in the East London and Komgha district, and the source of infection has been traced to association with Madagascar oxen."

Statistics published in the same report show that during 1907 there were altogether 23 outbreaks of tuberculosis in the Colony. The number of cattle in the herds affected was 633, of which 54 died or were destroyed, and 463 were "inoculated, tested, etc." In 1906 there were 13 outbreaks, affecting 325 cattle, of which 22 were destroyed or died. Ten outbreaks were recorded in the Cape district last year.

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## Notes on Tuberculosis.

By S. SPEER, M.R.C.V.S.

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Tuberculosis of cattle is characterised by very slow development, and by a very slow and chronic course. The earlier stages of the disease escape notice except in very rare cases where fever has been noticed. The symptoms vary according to the seat of the lesions, but as stated above no symptoms are noticeable until the disease is fairly far advanced, and by the time these symptoms arise the animals in contact with the infected stock are usually also infected. The infection spreads far more quickly among stabled animals, those animals running night and day being apparently less susceptible. This is instanced by sheep, among which stock, in comparison with other domesticated animals, the disease is rare. The disease is usually spread by the ingestion of

infected material. Owing to the slow course of the disease and the absence of symptoms in the earlier stages, infected animals may be introduced into clean herds and not until a large percentage of the herd has become infected, is the originally infected animal noticed to be sick.

As far as we know Rhodesia is quite free from the disease, whilst reports lately arrived from the Cape show the extent to which the disease exists there, and also gives some idea of how it may spread and infect stock without stockowners being any the wiser

Cattle in England are also infected to a great extent, it having been estimated that 30 per cent. of the dairy cattle in the United Kingdom are infected. Taking all these facts into consideration it behoves us to take the strictest precautions with regard to the importation of cattle, and the safest precaution of all is the testing with Tuberculin of all stock imported into the country. By applying the test an infected animal is immediately detected and can be destroyed at once, thus safeguarding the interests of all cattle owners, and not only of cattle owners but also of the general public whose health would be constantly jeopardised if tuberculosis existed in the dairies of this country. The application of the test is now in full swing, stables having been furnished in Bulawayo and Salisbury in which it can be carried out with the greatest reliability. All cattle now entering the country are subjected to the test whether they bear a clean certificate or not.

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## Agricultural Union Conference.

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The Annual General Meeting of the Agricultural Union was held at Salisbury on the 29th and 30th June, 1908.

Among the subjects discussed were: Vegetable fibres for Rhodesia; soil tillage; fruit culture; winter feeding of cattle; breeding cattle for Rhodesia, wood and water; native labour; medical officers; agricultural statistics; tobacco judges; muzzling of dogs, etc.

Mr. Eyles continued his paper on Fibre growing which is given in this number of the Journal.

Mr. A. J. Maclaurin brought in the subject of Fruit growing which led to an interesting discussion.

Mr. Odlum gave an account of the remarkable success which had attended the efforts of farmers on the arid tracts of the Western States of America hitherto looked upon as a second Sahara Desert. By skilfully conserving moisture of the soil the farmers there had succeeded in so increasing its natural fertility that in spite of the very low rainfall, some 11 to 16 inches, the American Dry Farmers' Association had been able to exhibit samples of produce of every description, wheat, maize, lucerne, oats, etc., of as fine quality as could be found elsewhere.

The secret of dry farming was good tillage and no trouble was spared to conserve the moisture of the soil, even from one years rain to another until it was sufficient for the crop required.

On the subject of the winter feeding of cattle Mr. Loosley pointed out the enormous advantage of having a continuous supply of milk and butter all the year round. On Cooper's farm near Bulawayo he had by means of winter feeding been able to have the cows milked twice a day throughout the year. The cows must of course be kept warm during the cold days of winter.

In his own experience he had found mangolds very successful as a winter food, also barley, and he believed manna forage as well. He had no less than 23 different kinds of stock food on the Show. One of the simplest was cob and corn meal which along with a certain amount of green stuff would provide an excellent food for cattle.

The discussion was carried on by various members on this subject.

Mr. Backhouse spoke on the most suitable methods of breeding cattle in Rhodesia and invited those having experience to speak on the matter.

Mr. Odlum thought it might be worth while to try the Hereford breed as one which had proved a "rustler" able to find its food and keep its condition where none of the ordinary English breeds would. It was particularly adapted to a country like Rhodesia where he thought it would be most likely to survive and keep its condition under adverse conditions.

Mr. C. A. Pope said that as a cattle breeder in the Cape Colony for 25 years he doubted whether it was possible to combine dairying with ranching successfully. He was a Shorthorn breeder himself but had also bred Herefords and Jerseys; the former class was one of the best beef breeds and also contained some very decent milkers, but in the Cape they had not crossed well. A Shorthorn bull on the other hand, provided it were pure bred, would at once produce a marked improvement on every class of stock; and the same might be said of Friesland bulls, though he considered them more a milk breed not carrying a weight of flesh.

An interesting discussion followed, taken part in by stockowners.

Wood and water rights were subsequently under discussion, the members of the Legislative Council expressing their views on the Ordinance before the Council.

Native labour was then taken up and methods spoken of in order to secure an adequate supply for farms.

The Mashonaland Farmers' Association meaning to take action of their own it was resolved to wait for the results arising from the action of that body.

Agricultural statistics. The question of whether the Union should make itself responsible for collecting the farming statistics required by the Agricultural Department was discussed at some length, and it was resolved that all delegates present would do their best to impress upon the farmers in their respective districts the necessity for supplying these statistics in a more accurate form.

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### **Importation of Plants into Lourenco Marques.**

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Regulations regarding the importation of Plants into the District of Lourenco Marques came into force on July 1st.

After September 1st no Plants can be imported into that District except upon the consignee obtaining a special permit from the office of the Secretaria Geral, Lourenco Marques.

## **Importation of Foreign Bees into South Africa.**

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His Excellency the High Commissioner has transmitted to the several South African Governments a copy of correspondence between Mr. D. Cairncross, of Pretoria, and the Transvaal Government on the subject of the desirability of prohibiting the importation of foreign bees into South Africa.

The disease known as "Foul Brood" is unknown in any part of South Africa, and it is with the view of taking steps to prevent its introduction that the different Governments are asked to take the matter into consideration and if it seem fit to pass the necessary laws.

The memorial by Mr. Cairncross states:—"Foul Brood" is one of the most virulent diseases known to apiarists and does enormous damage in England, America, Australia and the Continent.

When once it is introduced into South Africa we shall probably never get rid of it owing to the fact that wild bees inhabit most inaccessible places and cannot therefore be got at either for treatment or extermination."

It has been recommended by the Transvaal Government that the various bee-keeper's associations in each of the various Colonies take up the question with their respective Governments, in order that if legislation appear necessary and desirable, it should be simultaneous and uniform throughout the coastal Colonies and those inland.

Bee-keepers in S. Rhodesia, if they have not already formed associations, should individually communicate their views on the subject of prohibition to the Secretary for Agriculture, Salisbury.

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## **The Kennel Club Show.**

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The Salisbury Kennel Club are to be congratulated on the success of their first Show, which was held in conjunction with the Agricultural Show on the 27th June. It was expected that the Rabies Regulations

and the restrictions imposed on the movement of dogs during the past few years would have seriously affected the number of entries and the quality of the exhibits, but such, happily, was not the case. The catalogue shewed 93 entries, representing 83 dogs, 15 of which arrived by train. This is the first occasion on which dogs from places so far distant as Penhalonga, Gwelo and Battlefields have been sent to compete at a Salisbury Show. Next year we hope the entries will be doubled, and that other sportsmen at places outside Salisbury will follow the excellent lead of those who sent exhibits to the Show this year.

Taking the exhibits as catalogued the first four classes were devoted to *Pointers*, which were carefully judged by Mr. H. J. K. Brereton and Colonel Fuller. 1st in the class for dogs and special for the best Pointer in the Show went to "Rathmell Rap" who, although showing age, was again able to carry off premier honours. 2nd to "Pongo," nice action, hind quarters, skull and stern, but rather throaty and wants more length in head. Would be better if a size larger. 3rd to "Ruler," a dog of nice quality with good shoulders, legs, and feet, but too straight in stifles and bad in stern. He is lacking in substance and weak in muzzle otherwise his head is correct. He would probably have gone up higher had he been shewn in better condition. In the class for bitches "Rough" won. She is well-known in Pointer circles. 2nd to "Meta," who was put down in nice condition. She is a good bodied bitch but slightly on the small size, and rather fine all round, especially in head. Her front, legs, feet and stern are good, and she is also well ribbed and strong in loins. 3rd : "Stella," who shewed herself well. Nice expression, well boned, but not clean in neck. Size also is in her favour. The puppy class brought out "Jack," a recent arrival from Johannesburg. He is a good all round liver puppy with white markings on chest and toes. Good in muzzle, ears and loin, but too light in eye, and might be better in feet. He will probably come on.

Speaking generally the pointers were disappointing. What is required to effect an improvement are some good brood bitches from a well established strain. Owners would do well to turn their attention

to this matter. First class pups are seldom whelped by bitches such as the majority in the pointer classes. It would also be well to sound a warning against breeding from pointers of the "houndy type." The coarse and highly carried sterns, straight stifles, and want of stop noticeable in several of the exhibits indicate the Fox-hound cross which has done so much to damage the modern pointer.

*Setters* were judged by Mr. F. R. Barnes.

1st: "Ch. Mallwyd Soldier," who in spite of his years is still good enough to win in the best company. He is undoubtedly the best specimen of his breed ever seen in Salisbury, and should be accepted as the type to breed to. Though thick in skull and slightly gone in feet his beautifully placed shoulders, grand neck, well turned stifles, deep and square muzzle, and true expression placed him well ahead of any other gun dog in the Show. Had he been shewn in better coat and condition he would have come very close to winning the premier award of the Show. "Redwood Peggy"—a Blue Belton of nice quality—won in the bitch class. Her ears are correctly placed, and she possesses a nice neck, shoulders and hind quarters. She is, however, a little on the small side and would do with better feet. Her coat and condition were poor. Mr. Gerald Browne of Penhalonga is to be congratulated for having introduced this first class brace of Setters.

*Greyhounds*: a useful looking lot, were well judged by Mr. J. Ffoliott-Darling, an old fancier of the breed. The dog exhibited by Mr. Knight, of Gwelo, had no difficulty in securing 1st prize. He is a fine upstanding fawn coloured hound of excellent quality, and possessing grand muscular development. Nice shoulders, legs and feet, but his appearance would be improved by a little more arch of loin and neck. His performance in winning the gold medal for the best dog in the Show was well merited.

2nd and 3rd prizes went to Mr. C. F. Browning with "Prince" and "Quilp," and he also obtained 1st in the bitch class with "Venus," a nicely balanced and well developed hound.

*Terriers*: Mr. J. B. Ross officiated as judge and appeared to give general satisfaction—a difficult task to accomplish.

*Fox Terriers* were poorly represented. “Skipper,” a smooth coated dog, put down in nice condition, won. He is the correct size, has a good back, and specially good hind quarters, but fails in head, shoulders and pasterns. He shewed himself well. 2nd to “Kallan” (wire), a nice-headed dog, and possessing an extra hard coat; not too good in hind quarters, and lacking in expression; he is rather on the large size; showed himself badly, or might have done better. 3rd to “Mick,” who is hardly up to show form.

*Irish Terriers* were a strong class. “Corner Boy” won easily. His head, although rather short, is nicely shaped, and the hardness of his coat leaves nothing to be desired. In legs and feet he is specially good, and he stands up on them in a way which is a pleasure to see. His ear carriage is not always correct, and he would do better without the black marking on muzzle. 2nd to “Langlaagte”: nice head, expression and outline, but weak in ears, and coat too shaggy; bad in feet; should have been put down in better condition. 3rd to “Brian Borou”: good body, legs and feet, but too short in head, and faulty in ears, and lacking in expression.

*Airedales* undoubtedly formed the best class in *Terriers*. “Caerphilly Royal” won, and also carried off the Special given for the best Airedale dog, afterwards beating “Corner Boy” in the judging for the best Terrier in the Show. He is a grand bodied dog of the right size, with legs and feet of the best. He might with advantage be a little narrower in skull, and some more whisker would add to his appearance. In expression he is quite characteristic. It is a pity he is a bit off in colour, but he may improve in this respect. Many exhibitors could learn much from the way this dog was handled by his owner in the ring. 2nd to “Peter,” a very promising puppy, who was carrying the scars of some recent battle; nice skull, good body, legs and feet, but at present rather faulty in ears; wants time to come on. 3rd to “Dumbarton Patti,” a pretty bitch of nice quality, but not too good in feet, and weak in foreface. V.H.C. to “Molly.”

*The Variety Classes for Sporting and Non-Sporting Breeds* were judged by Mr. F. R. Barnes. The former class was responsible for one dog only, viz., a Scotch Deerhound named "Joe." He has nice shoulders, legs and feet, good eyes and expression, but is wanting in muscular development. His coat and condition could have been improved.

*The Non-Sporting Breeds* were grouped into one class, and consisted of Collies, Poodles, Boarhounds, Bulldogs, a Pomeranian and an Italian Greyhound; total number, 13. Mrs. Marshall Hole, however, had everything her own way with the Poodles "Matabele Boykie," "Matabele Genevieve," and "Matabele Minstrel," placed in the order named. These dogs were put down in the pink of condition, and were well shown. "Boykie," although still a puppy and not yet in full coat, is a large well-grown dog, full of quality. He has a nice long head free from coarseness, a strong muzzle and clean cheeks, short back and specially good loins. Would do with a harder coat, but this will probably come with time. This dog also won the Special for the best Non-Sporting dog, and was placed reserve for the best dog in the Show, which honours he richly deserved. "Genevieve" and "Minstrel" lose to the winner in size, development, and head properties, but they possess the elegant looks and high quality specially noticeable in the poodle family. H.C. to the Italian Greyhound "Pitt," who shewed himself well. He is on the large size, but of nice quality. Might be better in pasterns and feet.

*Foxhounds:* Mr. George Bowen and Colonel Fuller judged. Much interest was taken in the competition between the hounds belonging to the Gwelo Hunt Club and those from the Local Pack. Honours were evenly divided, the former winning the Teams and the latter carrying off 1st Prize for the best Hound.

Next year we hope to see a more liberal classification. Separate classes might be provided for the bitches in the Terrier Section, and the Non-Sporting breeds divided into several classes. To avoid the extra cost which this would involve, the prize money might be fixed according to the number of entries in each class.

## Railway Facilities for Settlers coming to occupy Land in Rhodesia.

### THE BEIRA AND MASHONALAND RAILWAYS AND RHODESIA RAILWAYS.

(Northern Extensions.)

#### REVISED CONCESSIONS TO BONA FIDE FARMER SETTLERS AND DEALERS IN AGRICULTURAL IMPLEMENTS.

The following revised concessions applicable to *bona fide* Farmer Settlers and their families entering Rhodesia for the first time for the purpose of taking up land are now in force:—

	Over Cape Government Railways.	Over B. and M. R. and Rhodesia Railways.
PASSENGERS ...	Half fare	Free
LUGGAGE ...	Double ordinary allowance	Double ordinary allowance
EXCESS LUGGAGE ...	Half rates, Owner's Risk	Half rates, Owner's Risk
FURNITURE, HOUSE- HOLD EFFECTS & AGRICULTURAL IMPLEMENTS by	Half rates, Owner's Risk	Half rates, Owner's Risk
goods train ...		
LIVE STOCK ...	Ordinary rates	Half rates, Owner's Risk
VEHICLES ...	Ordinary rates	Half rates, Owner's Risk

Applicants for these concessions must furnish a certificate from the Secretary, Estates Office, Salisbury, or the Secretary to the Administrator, Livingstone, to the effect that they are duly approved Farmer Settlers.

Live stock imported for breeding purposes, or for *bona fide* work on a farm, by old or new settlers will be allowed a reduction of 50 per cent. over the lines from Vryburg or Beira as the case may be. The Cape Government Railways will allow a reduction of 25 per cent. on breeding stock, sent over their lines to Rhodesia if belonging to and consigned to old settlers. Under no circumstances will the concessions be allowed over any of the Railways for Live Stock imported for slaughter or commercial transport. Application for certificates relating to the importation of Live Stock should be made to the Secretary for Agriculture, Salisbury.

Agricultural Implements imported by merchants and dealers will be charged half the 3rd class rates on and after the 15th June, ploughs known as No. 75 and parts

thereof excepted, the reduction on which will not take effect until 1st January, 1909. The following is a list of Agricultural Implements and appliances to which this rebate is applicable:—

Baling presses; bark cutters; baling wire; binders; binding twine; broadcast sowing machines; bone mills; butter churns; butter tubs; butter workers; butter driers. Cheese vats; cheese presses and pans; cream separators; corn drills; coolers, milk; corn and cob grinders; curd mills; cutaway harrows; cultivators. Dam scrapers; dairy scales; dip baths; dipping tanks; disc harrows; fodder shredders; grain dressing machines; grain drills; hand chaff cutters; harrows; hay rakes; hay collectors; hay presses (hand and power); hay loaders; hay tedders; headers; horse hoes; huskers. Incubators. Kaffir hoes and picks; kibbling machines. Land rollers. Maize husking and shelling machines; manure spreaders and distributors; mealie binders; mealie headers; milk buckets; milk warmers; milk pumps and elevators; mowers. Oil cake breakers. Pasteurizers; planters for mealies, kaffir corn, turnips and potatoes; ploughs, all descriptions; potato diggers; potato ploughs; pulverising harrows. Railway milk churns; rotary disc ploughs; reapers; root cutters. Scythes and sickles; scarifiers; shredders; sheep shearing machines; spraying materials; spraying pumps; straw and wind stackers; straw trussers; steam chaff cutters; sterilizers. Threshing machines; tobacco planters; trek tows. Weeders; winnowing machines; wheat strippers; wheat harvesters.

For further particulars apply to the Traffic Manager, Bulawayo, the District Traffic Superintendents, Umtali or Gwelo, or to C. Wibberley, Manager.

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### South African Stud Book.

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The South African Stud Book Association have issued Volume II. of the Stud Book, embracing the year 1907.

The volume is carefully compiled and handsomely got up and printed.

The contents include the pedigree records of animals entered, these being of horses, cattle, sheep, goats (Angora), ostriches and pigs in Cape Colony. Cattle, sheep, pigs, with an Auxiliary Stud Book for Boer horses and Africander cattle in the Transvaal. Horses, cattle, sheep and pigs in the O.R.C.

The breeds represented are chiefly Shorthorn and Friesland among cattle, but herds of Devon, Hereford, Ayrshire, and Red Polled are also recorded.

Attached to the cattle section there is an appendix and upon which the Council in their report state:—"That there are at present in the country large numbers of animals which have been pure bred for many generations, but owing to the absence until now of any Stud Book, records of their pedigree are not available. If the production of certificates were insisted upon, these animals would be entirely debarred from admission to the Stud Book. The appendix has therefore been started as a means whereby these animals can be registered. If, after inspection a cow or heifer is considered typical of its breed and a satisfactory history be forthcoming, the animal can be entered in the appendix; and if for three generations the progeny throw true to type, such progeny can in due course be registered in the Stud Book proper."

The South African Stud Book is a valuable record existing among S.A. breeders.

It supplies the breeding history of certain types and families of animals better than any other source of information could furnish.

We understand with satisfaction that Rhodesian breeders have in immediate contemplation the formation of a branch of the Stud Book Association. The large number of pure bred stock now in the country entirely warrants this.

It is to be hoped that the Committee now having the matter in hand will receive every support from the Agricultural Associations and all those who are interested in stock raising in Rhodesia, that they may carry through the practical steps necessary for having a branch for Rhodesia included in the Stud Book.

The President of the Cape Association and of the Central Council is Mr. G. G. Lee and the Secretary Mr. A. A. Persse, who are to be congratulated on the manner the work of the Association is being carried on.

## **Correspondence.**

TO THE EDITOR, "AGRICULTURAL JOURNAL."

SIR,—

At the last Agricultural Show dinner, held in Bulawayo, some very interesting remarks were made in an after dinner speech by one of the cattle judges—Mr. Mason—regarding the best method of breeding cattle in Rhodesia, or in any other part of South Africa.

He strongly advises breeding the cross bred, either the Hereford bull, the Devon, or the Shorthorn, crossed with the local cow, the Africander for choice.

This appeared to me an unnecessarily long process of arriving at a good herd. There is no doubt his idea has much to recommend it, as many breeders cannot afford to import good heifers as well as bulls, and there is no time lost in acclimatizing female stock, but I firmly believe young heifers as well as young bulls, can be brought into Rhodesia and acclimatized within a year or so, and the progeny of this stud herd should be quite hardy enough to find a good living on the Rhodesia veldt for at least 9 months in the year.

I am comparing Rhodesia with Queensland, the part of Australia that most resembles this country (and it does resemble Rhodesia very closely as a grazing country) and there the class of cattle is at a very high standard indeed. In Queensland cattle have to suffer greater hardships than they do in Rhodesia. The grasses certainly retain nutriment longer, but the droughts there are much more severe, and on the whole Queensland is not nearly so well watered.

In an ordinary year the average Queensland run would certainly carry more stock per square mile than the ordinary run of country here, but when droughts are so frequently experienced, the squatter can only safely calculate the carrying capacity of his run by what it can carry in a bad year, whereas here droughts (such as known in Queensland) are unknown.

Cattle are quite as healthy here as in Queensland. In the latter country Queensland Tick Fever has been as great an evil as African Coast Fever has been here; Pleuro-Pneumonia has been just as virulent there, and if Rinderpest broke out, no doubt it would do as much damage as it has done in other countries.

There does not appear to be any cattle sickness peculiar to this country. Rhodesia appears to me to be a particularly good cattle country, but if it is absolutely necessary to breed from local stock and not from imported bulls and heifers, then I am quite wrong in classing it as an equal to Queensland.

Mr. Mason may have had a longer experience in South Africa than I have had, and his information may be perfectly correct, as far as some parts of South Africa are concerned, but when it has been proved that good young bulls acclimatize quite well here, young heifers should acclimatize equally well, and the farmer who can afford to import some females as well as bulls, would have a far superior herd to his neighbours in a very few years.

It would take many generations to arrive at a high class animal if imported bulls only are brought into this country regularly and crossed with the ordinary female stock of Rhodesia.

I am,

Yours, etc.,

(Sgd.) ROBT. GORDON.

Bulawayo Club,

17th July, 1908.

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## Epitome of Cattle Inspectors' Returns.

MAY, 1908.

*African Coast Fever.*

Various outbreaks as reported previously.

*Glanders.*

The following animals tested with Mallein and found healthy:—197 Horses, 158 Mules, 93 Donkeys.—Total, 448.

Tested with Tuberculin:—85 head.

*Redwater.*

71 Animals have been inoculated.

*Scab.*

One flock under licence.

JUNE, 1908.

## SALISBURY.

No outbreaks of scheduled disease.

## BULAWAYO.

No outbreaks of scheduled disease.

*African Coast Fever.*

No new outbreaks or deaths on infected areas.

## UMTALI.

*African Coast Fever.*

One new outbreak is reported and is being dealt with on the same lines as previous outbreaks.

## VICTORIA.

No new outbreaks and no deaths on infected areas.

## GWELO, MELSETTER AND ENKELDOORN.

These districts are free from contagious disease.

J. M. SINCLAIR,

Chief Veterinary Surgeon.

## Market Rates for Agricultural Produce (Wholesale).

Kimberley market prices as supplied by James Lawrence and Co.:—

July 10th, 1908.

Bran, per bag 100 lbs. ...	8/- to 9/-	White Mealie Meal, imported, 203 lbs. guaranteed	None
Barley, per bag 163 lbs. ...	7/6 " 10/-	Oats, per bag 150 lbs. ...	9/6 to 11/6
Beans, Sugar, bag 203 lbs. ...	30/- " 35/-	Lucerne Hay, per 100 lbs. ...	4/6 " 5/6
" Kafir, 203 lbs. ...	15/- " 20/-	Onions, per bag 120 lbs. ...	15/6 " 18/-
Chaff (Colonial), bale ...	4/6 " 9/6	Potatoes, per bag 163 lbs. ...	9/- " 17/-
" " pressed, 100 lbs 3/- " 3/9		" (local) ...	14/- " 24/-
Forage, per 100 lbs., good	4/6 " 5/-	Tobacco, per lb., good ...	4d. " 7d.
" " inferior 3/- " 4/-		" " inferior	1d. " od.
Kafir Corn, S. African mixed 8/9 " 9/6		Wheat, per bag 203 lbs. ...	17/6 " 20/-
" White	9/- " 10/-	Butter, per lb., fresh ...	1/4 " 1/6
Boer Meal (Col.), unsifted 23/6 " 25/6		" " second quality ...	1/- " 1/2
" " sifted 26/- " 29/-		Eggs, per doz. ...	1/3 " 1/6
Flour (Col.), per bag 100 lbs. 15/6 " 16/6		Ducks, each ...	1/9 " 2/6
Yellow Mealies (Col.) 203 lbs. 8/9 " 9/6		Fowls, each ...	1/- " 1/9
White Mealies (Colonial),		Turkeys " ...	3/- " 6/-
hard, 203 lbs. ...	8/9 " 9/6	Hams and Bacon, per lb. ...	od. " od.
Mixed Mealies ...	8/9 " 9/6	Salt, per bag ...	2/9 " 3/9
White Mealie Meal, 183 lbs. 10/- " 11/-			

## SLAUGHTER.

	£	s. d.	£	s. d.		£	s. d.	£	s. d.
Oxen, good, prime, 600 lbs. upwards ...	7	0 0	10	0 0	Hamels, 40 to 45 lbs. ...	0	10 0	0	13 6
Cows, good, 450 lbs. upwards ...	5	0 0	8	0 0	Cape Sheep, good ...	0	10 0	0	13 6
Calves ...	4d.	per lb.	dead weight		Kapaters, good ...	0	10 0	0	13 6
Pigs, 100 lbs., clean, 2½ d., 3d. lb. live wht.					Oxen, Trek ...	6	0 0	7	0 0
Lambs, 30 lbs. ...	0	8 0	0	10 0	Riding Horses ...	10	0 0	25	0 0
					Draught Horses ...	10	0 0	22	10 0
					Mares ...	9	0 0	20	0 0

*Remarks.*—Mealies remain unchanged, but there is a better demand for Yellows. Kaffir Corn, good white inquired for. Meal and Bran firm. Forage and Oats easier, owing to the uncertainty regarding exportation. Potatoes firm. Sound dry Onions have had slight advance in value. Fair demand for Fresh Eggs. Best quality Butter finds ready sale. Fair supplies of Poultry arriving. Market overstocked with Oranges and Naartjes. Pumpkins inquired for. Fresh Vegetables plentiful. Game fetching low prices. Little doing in Live Stock Market.

Johannesburg produce market prices as supplied by  
Hubert Morisse and Co.:—

## WEEKLY MARKET PRICES.

Barley, per 163 lbs. ...	7/-	to	8/6	Lucerne, per 100 lbs. ...	6/6	to	7/9
Bran, per 100 lbs. (Colonial) ...	8/3	„	8/6	Manna ...	3/3	„	4/-
Chaff, best, 100 lbs. ...	2/6	„	3/3	Transvaal Hay ...	7d.	„	1/-
„ medium ...	1/3	„	2/3	Oats, per 153 lbs. ...	7/6	„	9/9
Eggs, per doz. (Colonial) ...	1/5	„	1/6½	Potatoes, best, per 153 lbs. ...	15/-	„	16/-
Salt, per bag ...	5/9	„	6/3	„ medium ...	11/9	„	14/6
Forage (Transvaal) ...	5/-	„	5/6	„ inferior ...	9/-	„	11/6
„ (Colonial), best, pr. 100 lbs. ...	6/-	„	6/3	Onions, 120 lbs. (Colonial) ...	19/6	„	21/-
„ „ med., „ ...	3/9	„	4/9	Turkeys, Cocks ...	5/-	„	9/6
S. Meal, best fine ...	26/-	„	27/-	„ Hens ...	2/6	„	4/6
Rye ...	13/6	„	14/6	Fowls ...	11/5	„	3/-
Wheat ...	19/-	„	21/-	Ducks ...	1/6	„	2/9
Mealies (Hickory King Whites) ...	9/3	„	9/6	Geese ...	3/6	„	3/9
„ (O.R.C. Whites) ...	9/-	„	9/3	Pigeons ...	7d.	„	8d.
„ (Yellow) ...	9/6	„	10/-	Butter (O.R.C.) ...	1/-	„	1/3
Kaffir Corn, per 203 lbs. ...	9/6	„	10/9	Pumpkins, each ...	1d.	„	3d.
Hay, Sweet (Transvaal) ...	1/2	„	1/10	Beans, per 200 lbs., sound ...	17/6	„	46/-

**LIVE STOCK.**—Prime Slaughter Oxen are very scarce and find a ready sale. Good medium are in fair supply, but find a much better sale. Poor Oxen and old Cows are hard to get rid of, but good slaughter Cows sell well. Poor demand for Trek Oxen. Prime Hamels are wanted; poor stuff is hard to sell at any price. Heavy fat Boer Kapaters find a splendid sale. Mules show no change; supply is fairly good, but the demand has eased off. Donkeys are a glut. Pigs: good young Porkers are in demand; heavy Pigs hard to sell. First-class Breeding Heifers and Cows are in demand. No enquiry for Ewes.

## BREEDING STOCK.

Commissions undertaken and orders promptly executed at lowest rates. We have on hand a few Afrikaner Heifers in calf, also 15 well-bred Friesland and Shorthorn Heifers, 2 to 3 years old, some in calf.

Quotations are:—

Slaughter Oxen, prime—£10 to £11 10s.	Kapater Goats—11s. to 19s.
Trek Oxen—£6 to £8 10s.	Mules, large—£19 to £22 10s.
Slaughter Cows—£5 to £7.	„ medium—£15 to £18.
Tollies—£4 to £5.	Horses—£12 10s. to £22 10s.
Milch Cows—£13 to £30.	Donkeys—£5 to £6.
Sheep (Cape)—per lb., 4½ d.; 15s. to 21s.	Heifers, 1½ to 3 years—£5 to £8 10s.
„ (Merino)—per lb., 4½ d. to 5d.; 15s. to £1 1s.	Cows (young Afrikanders)—£8 to £9 10s..
Slaughter Ewes—9s. to 12s. 6d.	Pigs, per lb.—2½ d. to 4d.
Lambs, 8s. 6d. to 12s. 6d.	

Bulawayo market prices for week ending July 18th from the *Bulawayo Chronicle*.

## GRAIN.—Merchants' Prices.

Yellow Mealies ... ..	11/6 to 12/6	Bran ... ..	15/- to 16/
White " ... ..	13/- " 13/6	Forage, per 100 lbs. ...	10/- " 10/6
Kaffir Corn, Mixed ...	11/6 " 12/6	Salt (Colonial) per bag...	16/- " 16/6
Inyouti ... ..	9/6 " 10/9	Onions ... ..	25/6 " 26/6
Oats (Colonial) ... ..	22/- " 23/6	Potatoes ... ..	22/- " 23/6

## LIVE STOCK.

Slaughter Cattle, fat, per 100 lbs. ... ..	35/6 to 37/6	Trek Oxen ... ..	£9 to £10 5s.
Slaughter Sheep (local) ...	17/6 " 19/-	Horses, unsalted ... ..	£20 " £25
" " (Colonial) ... ..	22/6 " 25/-	Mules (inoculated) ...	£22 10s. " £27 10s.
Boer Goat Ewes, milking ...	15/- " 20/-	Donkeys ... ..	£6 10s. " £8
Local Heifers, 2 years ...	£8 10s. to £11	Bechuanaland Goat Ewes	12/- " 15/-
" Cows ... ..	£12 10s. " £15	Cape Goat Ewes ... ..	17/6 " 20/-
Dairy Cows ... ..	£25 " £30	Persian Ewes, 3-bred ...	20/- " 22/6
Colonial Heifers... ..	£10 " £16	Persian Rams ... ..	£3 " £5

The Live Stock market is reported as being very dull, and with the exception of Sheep, the supply of which is very restricted, all classes seem to be purchasable almost to any extent. Horses, Cattle and Donkeys are specially mentioned as being in good supply and as meeting with no demand.

Salisbury market prices for Produce week ending July 18th, as supplied by Messrs. Wightman & Co.:—

Mealies ... ..	11/- to 11/6	Oat Forage, per 100 lbs. ...	12/6
Rapoko ... ..	10/- " 11/-	Manna Hay, per 100 lbs. ...	7/6 to 10/
Kaffir Corn ... ..	12/- " 13/-	Hay, per ton ... ..	40/- " 50/-
Munga ... ..	12/6 " 14/-	Ground Nuts, per bag ...	8/6 " 9/-
Potatoes, per bag 150 lbs. ...	27/6 " 30/-	Flour ... ..	22/6 " 25/-
Onions, per lb. ... ..	3d. " 3½d.	Boer Meal... ..	45/- " 50/-
Pumpkins, per ton ... ..	75/- " 80/-		

Market well supplied in all lines.

Live stock prices supplied by Messrs. Whitfield & Co.:

Good Milk Cows ... ..	£25	Colonial Sheep ... ..	30/-
Ordinary Cows ... ..	£12 10s. to £14	Colonial Fowls ... ..	3/6 to 4/-
Native Cows ... ..	£6 10s. " £8	Ducks ... ..	4/6 " 5/-
Native Oxen, trained ... ..	£10	Turkeys ... ..	14/- " 15/-
" untrained ... ..	£8	Horses ... ..	£25 to £30
Colonial Oxen ... ..	£12 10/-	Mules ... ..	£23 " £25
Slaughter Oxen, per 100 lbs. ...	40/-	Donkeys ... ..	£8 " £9

## **SOUTH AFRICAN STUD BOOK.**

**A** RECORD of all classes of Stock, the object being to encourage the breeding of Thoroughbred Stock and to maintain the purity of breeds, thus enhancing their value to the individual owner and to the country generally.

Applications for Membership and entries of Stock should be addressed :

For Cape Colony to—

J. PIKE, P.O. BOX 703, CAPE TOWN.

For Transvaal to—

F. T. NICHOLSON, P.O. BOX 134, PRETORIA.

For Orange River Colony—

E. J. MACMILLAN, GOVERNMENT BUILDINGS,  
BLOEMFONTEIN.

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J. PIKE,

Secretary South African

Stud Book Association.

## Government Notices.

No. 188 of 1906.

26th July, 1906.

### AFRICAN COAST FEVER.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw the regulations promulgated by Government Notices Nos. 264 of 1905 and 164 of 1906 and declare the following to be of full force and effect in lieu thereof within the Province of Matabeleland, exclusive of the District of Gwelo as described and defined by section 4 (c) of the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which area is hereby declared to be an area infected with a destructive disease and is hereinafter called the said area.

1. No cattle shall be moved from any other part of the Territory of Southern Rhodesia into the said area.

2. The movement of cattle to, from or across any defined area appearing in the schedule hereto or any area which may hereafter be added to that schedule so long as such area remains in and is not withdrawn from the schedule is absolutely prohibited save and except as is provided for in sections 3, 6 and 7 of these regulations.

3. The movement of all cattle within the said area is prohibited save and except

- (a) On permission granted by an Officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within an area of land enclosed by a substantial fence.
- (d) Within a radius of four miles of any native kraal situate within the boundaries of any Native Location or Reserve, and as is hereinafter further provided.

4. The movement of cattle for slaughter, *bona fide* farming, mining or breeding purposes or for private milk supplies shall be permitted under the written authority of an official thereto duly authorised subject to the following terms and conditions:

- (a) That cattle are moved to the nearest or most suitable railway station or siding, and thence by rail to their destination, or, where the district is not served by a railway by the most suitable route to their destination, all cattle travelling by road shall be under the personal supervision of a responsible white man approved of by the Cattle Inspector or of a native approved of by the Native Commissioner and the Cattle Inspector of the district within which the movement takes place.
- (b) That written permission of owners, occupiers or managers of all occupied land, and in the case of Native Reserves, of the Native Commissioner of the District over which such cattle shall pass to the nearest station, siding or destination is obtained; provided that in the event of such owners, occupiers, managers or Native Commissioner refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal, if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall before being moved, be thoroughly disinfected by dipping or by spraying to the satisfaction of the Officer issuing permit, and at the expense of the owner of such stock, and if intended for slaughter shall where possible be branded under the supervision of the Officer issuing permit with the letters "V.D." on the near side of neck.

- (d) That cattle intended for slaughter shall, on arrival at destination subject to the terms of clause (e) hereof, be immediately taken to the prescribed quarantined area and there be quarantined and confined, and where not branded in terms of clause (c) hereof, be similarly branded under the supervision of a duly authorised officer.
  - (e) That all cattle intended for slaughter brought to their destination and not disinfected by dipping or spraying in terms of clause (c) hereof shall be immediately taken to the public dipping station and there be thoroughly dipped or sprayed before being taken to the quarantine area.
  - (f) That all cattle admitted to the quarantine area shall be slaughtered within twenty-one days of their admission, and under no pretext whatever shall cattle so admitted be permitted to leave the said area alive; all such cattle shall after admission to the said area be considered as likely to be infected with disease and if found wandering outside the said area or in possession of any person may be destroyed under an order of the Chief Inspector or Controller of Stock.
  - (g) That on arrival at destination cattle other than slaughter cattle shall be dipped or sprayed and shall be effectually isolated from all other cattle on the same land for a period of four weeks.
5. The movement of working cattle may be permitted under the following conditions only :—
- (a) Within a radius of six miles of any working mine or mine in course of development for the purposes of such mine, provided that such cattle shall only be moved under a permit of a duly authorised officer, and shall be dipped every fourteen days or where no dipping tank is available be thoroughly sprayed with an approved dip, provided further that such permission shall not be granted when it conflicts with any other section of these regulations, or if such movement is considered dangerous to other cattle within the six mile radius.
  - (b) Within the said area from private farms and trading stations to any centre of consumption or to a Railway Station or Siding within the said area under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed, provided that no such permit shall be issued until the person applying for same shall produce the written consent of the owners, occupiers or managers of occupied lands proposed to be traversed, and, in the case of Native Reserves, of the Native Commissioner, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner and to the satisfaction of the Officer issuing the permit; provided further that in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.
6. In the event of the failure of pasturage or water on land on which cattle are located, the movement of such cattle will be permitted, provided :—
- (a) That such movement shall be to nearest available pasturage by the most suitable route.
  - (b) That written consent be obtained in terms of Section 4 (b) hereof.
  - (c) That movement shall be by permit only of a duly authorised officer, and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector and Native Commissioner of the district.
7. For the purposes of cleansing an area from disease the Controller of Stock may, on the authority of the Administrator and on the advice of the Chief Inspector of Cattle, and subject to such conditions as may be stipulated, permit the removal of cattle from a scheduled area to an adjacent clean area.
8. All applications for the removal of cattle under sections 4 and 5 hereof shall be submitted to and approved of by the Veterinary Department before being granted and when such movement is from one Native District to another

the application shall be submitted for the approval of the Government Veterinary Surgeon at Bulawayo and the Native Commissioners of the Districts to and from which the removal is made.

9. All permits granted under the provisions of this notice shall specify the number and brands of cattle, route to be traversed, and time allowed for each journey; any breach of these or other conditions endorsed on the permit by the issuing officer shall be deemed a contravention of these Regulations in terms of section 14 hereof.

10. All veld-fed animals within the limits of the various Commonages or Townlands or other centres where there is common grazing ground, and wherein cases of African Coast Fever have occurred within two years of the date of publication hereof, and upon which public dipping tanks have been established, shall be dipped therein at least once every fourteen days: provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.

11. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these Regulations in respect of any dipping done at a public dipping tank:—

For cattle (over six months)	.. .. .	3d. per head.
For horses and mules	.. .. .	3d. „
For calves (six months and under)	.. .. .	2d. „
For small stock	.. .. .	½d. „

with a minimum charge of 6d. for any number of animals not aggregating such fee under above tariff.

12. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed; provided that the Inspector may, at his discretion, carry out such disinfection with the assistance of and at the entire cost of the owners of the animals to be sprayed, the cost of such disinfection being payable at the time of the spraying.

13. Whenever the owner, occupier, or manager of a farm shall adopt measures for the cleansing of his cattle running thereon, either by spraying or dipping or by any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the said farm to cleanse such cattle, and the Native Commissioner of the District in which such farm is situated may enter into an arrangement with the native owners of cattle to cleanse such cattle at a charge to be mutually agreed between the said owner, occupier, or manager and the said native owners.

14. Any person contravening any of the provisions of these regulations shall, upon conviction, be liable in respect of each offence to the fines and punishments prescribed by the Ordinance, and in cases where no special punishment is provided, to a fine not exceeding £20, or in default of payment to imprisonment with or without hard labour for any period not exceeding three months, unless the penalty be sooner paid.

#### SCHEDULE.

- (1) Fingo Location.
- (2) An area within a radius of ten miles of Ntolas Kraal on the farm Emangeni.
- (3) An area comprising the farms Upper and Lower Umvutcha, Reigate, Upper Nondwene, Mapane, Government Farm No. 5, Trenance and the plots adjoining the farms Umvutcha.

No. 216 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 10th October, 1907.

AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw Sub-section (b), Section 5 of Government Notice No. 188 of 1906, and declare the following to be of full force and effect in lieu thereof:—

Within the said area from private farms and trading stations to any centre of consumption, or to a railway station or siding, or to and from any other farm, or from a mine to a railway station or siding for the purpose of transporting fuel or mining timber, under the permit of a duly authorised officer, which permit shall fully set forth the route to be traversed; provided that no permit shall be issued until the person applying for the same shall produce the written consent of the owners, occupiers, or managers of occupied lands proposed to be traversed, and, in the case of native reserves, of the Native Commissioners, and that such cattle shall before being moved be thoroughly disinfected by dipping or spraying at the expense of the owner, and to the satisfaction of the officer issuing the permit; provided further that, in the event of such consent being unreasonably withheld, the Controller of Stock may direct the issue of a permit.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 217 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 10th October, 1907.

AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw as from the 1st October, 1907, the regulations promulgated by Government Notices No. 189 of 1906 and No. 185 of 1907, and declare that the following shall be of full force and effect in lieu thereof from that date within the province of Mashonaland and the fiscal division of Gwelo, as defined by the "Southern Rhodesia Boundary Regulations Amendment Regulations, 1898," which areas are hereby declared to be areas infected with a destructive disease:—

1. The movement of all cattle within the said area is prohibited save and except:—

- (a) On permission granted by an officer specially authorised thereto by the Administrator.
- (b) Within the boundaries of any single farm where such cattle are depastured.
- (c) Within any area of land enclosed by a substantial fence.

- (d) Within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp.
- (e) Within a radius of four miles of any native kraal situate within the boundaries of any native location or reserve, the site of such kraal shall be deemed to be the place where it is situated at the date of publication hereof, and as is further provided.

2. The movement of cattle for slaughter purposes shall be permitted under the written authority of an officer thereto duly authorised, subject to the following terms and conditions:—

- (a) That such cattle are moved by the most suitable route to the centre of consumption. All cattle travelling by road to be under the personal supervision of a responsible white man, or native approved of by the Cattle Inspector.
- (b) That before cattle may enter from a native district not included in any particular group of districts as defined in Section 6 (b) the written permission of owners, occupiers, or managers of all occupied land, and, in the case of native reserves, of the Native Commissioner of the district over which such cattle shall pass to the nearest station, siding, or centre of consumption is obtained; provided that in the event of such owners, occupiers, managers, or Native Commissioners refusing to grant such permission, the Controller of Stock may direct the issue of a permit of removal if satisfied that the necessary permission is withheld without good and sufficient cause.
- (c) That such cattle shall, on arrival at the centre of consumption, subject to the terms of clause (d) hereof, be immediately taken to the prescribed quarantine area, and there be quarantined and confined, and branded with the letters "V.D." on the near side of the neck under the supervision of a duly authorised officer.
- (d) That all cattle brought into any centre of consumption shall be disinfected by dipping or spraying at the public dipping station before being taken to the quarantine area.
- (e) That all cattle admitted to the quarantine area shall be slaughtered within 21 days of their admission, and only be permitted to leave the area for the purpose of being driven to the abattoir for slaughter. All such cattle shall, after admission to the said area, be considered as likely to be infected with disease, and, if found wandering outside the said area or in possession of any person, may be destroyed under an order of the Chief Inspector or Controller of Stock.
- (f) That intermediate depots, or concentration camps, for slaughter stock may be allowed at centres approved of by the Chief Inspector of Cattle, provided that no such camp shall be situated within less than a radius of five miles of any commonage, town lands, or grazing ground common to any mining camp, railway station or siding.

3. The movement of cattle required for *bona fide* mining, farming, breeding and dairying purposes and for private milk supplies may be permitted on the written authority of a duly authorised officer, subject to the following terms and conditions:—

- (a) That such movement shall take place subject to the conditions set forth in Section 2 (a) and (b).
- (b) That whenever such cattle shall at any place along the route have passed within a radius of less than five miles of an infected area, the cattle shall upon arrival at their destination be effectually isolated from all other cattle on the same land for a period of four weeks.
- (c) That whenever the cattle being removed shall at any portion of the route have passed within native districts where infected areas exist, the consent in writing to such movement be obtained from all owners of cattle on farms adjoining that to which movement takes place; and in the case of native reserves of the Native Commissioners of the districts; provided that should such consent be unreasonably withheld by any of the aforesaid persons the Controller of Stock may direct the issue of a permit.

- (d) That such cattle required for breeding and dairying purposes, or for private milk supplies, when moved to within the boundaries of the various commonages, town lands, or of grazing ground common to any mining camp or other centre where cases of African Coast Fever have occurred within 15 months, shall be confined in some enclosed place approved of by the local Cattle Inspector, and, if a case of African Coast Fever occur in such enclosure, shall not be liberated therefrom except in terms of Section 5 hereof, until 15 months after the last occurrence of African Coast Fever within the enclosure in which they are kept, nor shall they be allowed, after liberation, to run upon any of the land specified herein, unless such land has been free from African Coast Fever for a period of 15 months.
- (e) All cattle introduced in terms of the preceding sub-section (d) shall, on arrival, be taken direct to the Government dipping station and there be dipped or sprayed.
- (f) All cattle confined in terms of clause (d), and all calves born within the said enclosures, shall be sprayed every 14 days, as may be directed by the Cattle Inspector.
- (g) No cattle shall be moved from one native district to another unless with the permission of the local Veterinary Officer and the Cattle Inspectors of the districts to and from which such movement takes place.

4. All calves having less than two permanent teeth running within the boundaries of the various commonages, town lands, or grazing ground common to any mining camp or other centres where cases of African Coast Fever have occurred within 15 months of the date of these Regulations, or born thereon after such date, shall be removed to some enclosed place approved of by the local Cattle Inspector, and shall not be liberated or allowed to run at large on such commonage, town lands or common grazing ground until 15 months after the occurrence of the last case of African Coast Fever within the enclosure in which they are confined, or upon such commonage, town lands or common grazing ground.

- (a) No calves shall be permitted to accompany working cattle travelling along the roads mentioned in Section 7, sub-section (c), and all calves born of such working cattle whilst travelling shall not be removed from the place where born.

5. For the purpose of cleansing an area of disease the Controller of Stock may, under the authority of the Administrator and on the advice of the Chief Inspector of Cattle, subject to such conditions as may be stipulated, permit the removal of calves and other cattle to an adjacent clean area.

6. The movement of working cattle other than those specified in Section 7 hereof may be permitted within the following areas and on the terms and conditions hereinafter set forth :—

- (a) Within a maximum radius of 15 miles of any working mine, or mine in course of development, for the purposes of such mine, provided that :—
  - (1) Such cattle shall only be moved under permission of a duly authorised Officer, and shall be dipped every 14 days where a dipping tank is available within such area, or, in the absence of a dipping tank, be thoroughly sprayed with an insecticide.
  - (2) Such permission shall not be granted where it conflicts with any other section of these regulations, or if such movement is considered to be dangerous to other cattle within the 15 mile radius.
- (b) Within the boundaries of the Gwelo and Lomagundi Native Districts, and within and between the boundaries of the following adjoining Native Districts : (1) Salisbury, North and South Mazoe ; (2) Hartley, Charter and Chilimanzi ; (3) M'tokos, M'rewas, Marandellas and Makoni ; (4) Inyanga, Makoni and Umtali (as defined by Government Notice No. 13 of 1899) ; (5) Along the road West of the

Sabi River from Odzi Bridge to Makondo Copper Mine, subject to the following conditions :

- (1) That the movement will be permitted for such period as the Controller of Stock may in his discretion, and on the advice of the Chief Inspector of Cattle, deem expedient, provided that such permission may at any time be withheld or withdrawn without notice.
  - (2) That all applications for removal shall be approved of by the Cattle Inspectors of the districts through which the cattle pass.
  - (3) Provided that in the event of such Cattle Inspectors refusing to grant permits for the removal of cattle, the Chief Inspector may, on the advice of the local Veterinary Officer, direct the issue, if satisfied that the necessary permission is withheld without good and sufficient cause.
  - (4) That all such cattle are dipped every 14 days where a tank is available, or, in the absence of a tank, are thoroughly disinfected by spraying.
7. The movement of "salted" or immune working cattle shall be permitted on the following terms and conditions :—
- (a) That such cattle have been registered and branded under the supervision of the Cattle Inspector with the brand "T.O." on near shoulder and the registration number on near horn, in terms of Section 7, clauses (a) and (b) of Government Notice No. 109 of 1905.
  - (b) That the movement of such cattle shall only take place under the written permit of a duly authorised officer and subject to the conditions that they are disinfected by dipping every 14 days, where a dipping tank is available, or, in the absence of a dipping tank, by thorough spraying with an insecticide.
  - (c) That movement of such cattle only shall be permitted :—
    - (1) Along the main roads of the Melsetter District.
    - (2) From Umtali to the Makondo Copper Fields.
    - (3) From Melsetter to Umtali.
8. In the event of failure of pasturage or water on land on which cattle are located the movement of such cattle will be permitted, provided :
- (a) That such movement shall be to the nearest available pasturage by the most suitable route.
  - (b) That written consent be obtained in terms of Section 2, clause (b) hereof.
  - (c) That such movement shall be by permit only of a duly authorised officer and under the supervision of a responsible white man, or of a native approved of by the Cattle Inspector of the district.
9. All applications for the removal of cattle under Sections 2, 3 and 8 hereof shall be submitted to, and approved of by, the local Veterinary Officer before being granted.
10. All permits granted under the provisions of these Regulations shall specify the number and brands of cattle, route to be travelled and period allowed, and may define places of outspan, and all other conditions endorsed on such permits by the officer issuing the same shall be strictly observed.
11. All veldt-fed animals within the limits of the various commonages or town lands, or other centre where there is common grazing ground within the districts of Umtali and Melsetter and the scheduled area at Selukwe, upon which public dipping tanks have been established, shall be dipped therein at least once every 14 days ; provided that the Controller of Stock may, on the advice of the Veterinary Department, direct the temporary suspension of this regulation for such reasons as he may regard as sufficient.
12. The following charges shall be paid at the time of dipping by the owner of the cattle or other animals required to be dipped under these regulations in respect of any dipping done at a public dipping tank :—

For Horned Cattle (six months old and over)	..	3d. per head.
For Horses and Mules	..	3d. "
For Calves (under six months) and Donkeys	..	2d. "
For Small Stock	..	1d. "

with a minimum charge of 6d. for any number of animals not aggregating such fee under the above tariff.

13. Any disinfecting by spraying required to be done under these regulations shall be carried out with an approved insecticide by the owner of the animals so sprayed: provided that the Inspector may at his discretion carry out such disinfection with the assistance of and at the entire cost of the owner of the animals sprayed, the cost of such disinfecting being payable at the time of spraying.

14. Whenever the owner, occupier, or manager of a farm shall adopt means for cleansing his cattle running thereon, either by spraying or dipping or any other method permitted by these or any other regulations, the Cattle Inspector may order such natives or others as have cattle on the same farm to cleanse such cattle or any others before permitting them to enter or pass over such an area, and the Native Commissioner of the district in which such farm is situated may enter into an arrangement with the native owners of cattle, to cleanse such cattle at a charge to be mutually agreed upon between the said owner, occupier or manager and the said native owners.

15. Any person contravening the provisions of these regulations shall be liable to the punishments prescribed by the Ordinance, and in cases where no special punishment is prescribed by the said Ordinance to a fine not exceeding £20, or to a period not exceeding three months' imprisonment with or without hard labour in default of payment of any fine inflicted.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 40 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 20th February, 1908.

#### AFRICAN COAST FEVER.

IT is hereby notified for public information that Government Notice No. 217 of the 10th October, 1907, is hereby amended by extending the provisions of Section 6 thereof to the movement of working cattle in the Native District of Ndanga and that portion of the Victoria Native District lying west of the Popotekwe River and north of the Ndanga Road, provided, however, that such movement shall only take place as between occupied farms and for purposes connected with employment at the Umkondo Mine.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 66 of 1907.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 28th March, 1907.

#### AFRICAN COAST FEVER.

NOTWITHSTANDING anything to the contrary by regulation provided, I, under and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," hereby provide as follows:—

No cattle shall be allowed to be at large, or moved about for the purposes of work, or other cause, within the area defined hereunder, unless an Inspector shall be satisfied that the said cattle are immune from the disease known as African Coast Fever, and shall have caused such cattle to be branded with the letters "T O" on the near shoulder.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FENN,  
Acting Treasurer.

## AREA.

From a point on the Tebekwe River one and a half miles North East of the Wanderer Mine in a straight line to the Wanderer Dam, thence in a straight line to the Sebanga Poort, thence along the top of the Eastern slope of the Poort Hills to a point half a mile west of the Paf Mine, thence to the Lundi River in a straight line, thence in a straight line East to the Victoria Road Drift on the Tebekwe River, and thence up the River to the first named point, situate in the Native District of Selukwe.

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No. 67 of 1908:

Department of Agriculture,  
Administrator's Office,

Salisbury, 19th March, 1908.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by Section 5 of the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw that portion of Government Notice No. 94 of 1905 relating to an area set apart for the depasturing and quarantine of slaughter cattle at Selukwe, and declare the undermentioned area to be set apart in lieu thereof:—

A piece of fenced land in extent about 300 acres, situated on the farm Sebanga and adjacent to the Township of Selukwe.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

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No. 114 of 1908.

Department of Agriculture,  
Administrator's Office,

Salisbury, 16th April, 1908.

## AFRICAN COAST FEVER.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and withdraw section 9 of Government Notice No. 217 of 1907, and declare the following to be of full force and effect in lieu thereof:—

Notwithstanding anything to the contrary elsewhere provided, all applications for the removal of cattle under sections 2, 6 and 8 of the Regulations published under Government Notice No. 217 of 1907 shall be submitted to, and approved of, by the local Government Veterinary Surgeon or Cattle Inspector before being granted, except in the native districts of Lomagundi, North and South Mazoe, Mrewas, Marondellas, Makoni, Inyanga, Salisbury, Hartley, Charter, and Chilimanzi, within which districts officers duly authorised to issue permits may authorise such removal without submitting the aforesaid applications to, and obtaining the approval of, the local Veterinary Officer.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer

No. 170 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 11th June, 1908.

#### AFRICAN COAST FEVER.

UNDER and by virtue of the powers in me vested by the "Animals Diseases Consolidation Ordinance, 1904," I hereby apply the provisions of Government Notice No. 114 of the 16th April, 1908, to the native district of Ndanga.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator.

F. J. NEWTON,  
Treasurer.

No. 123 of 1908.

Administrator's Office,  
Salisbury, 23rd April, 1908.

UNDER and by virtue of the powers conferred on me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby provide as follows :—

1. For the purposes of the more effectual control and supervision of cattle in any infected area the Controller of Stock may direct the branding of any such cattle with a special brand by him selected.
2. Any person who shall refuse or neglect to afford all reasonable facilities for branding cattle as aforesaid shall be liable to a fine not exceeding twenty pounds, and in default of payment to imprisonment with or without hard labour for a period not exceeding three months.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council,

F. J. NEWTON,  
Treasurer.

No. 110 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 16th April, 1908.

#### IMPORTATION OF CATTLE.

UNDER and by virtue of the powers conferred on me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel and repeal so much of the Regulations published under Government Notice No. 187, dated the 26th of July, 1906, as relate to the importation of cattle from the Colony of the Cape of Good Hope and the United Kingdom of Great Britain and Ireland, and make the following provisions in lieu thereof :—

1. The importation of cattle may be permitted from the Colony of the Cape of Good Hope and the Orange River Colony on the following terms and conditions :—

- (1) A permit shall be required from the Chief Inspector which may contain such conditions as shall from time to time appear expedient.
- (2) Applications for permission to import shall be in the form "A" attached hereto, and accompanied by a declaration in the annexed form "B."
- (3) The importation of cattle with more than two permanent central incisor teeth shall not be permitted.

- (4) All importations shall be by rail, and for the purposes thereof Bulawayo shall be regarded as the port of entry.
  - (5) All cattle imported in terms of these Regulations shall on arrival at Bulawayo, Salisbury, or Umtali be removed to a place of quarantine under the supervision of an Inspector of Cattle, there to be submitted to such examination and tests as the Chief Inspector may direct. If such examination or tests disclose the existence of any destructive disease the cattle shall be immediately destroyed and the carcasses thereof disposed of in such manner as a Government veterinary surgeon may authorise or require. The Chief Inspector may permit of any examination or tests as aforesaid being dispensed with in the case of cattle in transit by rail for any place beyond the boundaries of Southern Rhodesia.
  - (6) All expenses or losses incident to quarantine, examination, testing or destruction as aforesaid shall be borne by the owner of the cattle.
2. The importation of cattle from the United Kingdom of Great Britain and Ireland may be permitted under the following terms and conditions:—
- (1) Importation shall be through and direct from the coast ports of the Cape Colony, and there shall be a consignment note or other satisfactory evidence that cattle so imported have come direct from Great Britain or Ireland.
  - (2) The provisions of sub-sections (5) and (6) of section 1 hereof shall apply to importations in terms of this section.
3. No person shall import cattle in terms of these Regulations except for his own use, provided however that permission may be granted to import for others on the applicant disclosing the name of the person or persons for whom he proposes to act.
4. Any person introducing cattle in contravention of these Regulations, or failing to comply with any conditions attached to permits to import, or furnishing applications, declarations, or other necessary documents known to be false in any material particular, or failing to comply with all lawful directions as to quarantine, examination, testing, destruction or disposal of carcasses, shall be liable to a fine not exceeding £20 for each animal in respect of which such offence shall have been committed, and in default of payment to imprisonment with or without hard labour for any period not exceeding six months, unless higher or greater penalties shall have been provided for such offences by the "Animals Diseases Consolidation Ordinance, 1904," provided however that the penalties imposed by these Regulations shall not exempt any cattle from destruction in terms of the aforesaid Ordinance.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

#### ANNEXURE "A."

#### APPLICATION FOR CATTLE IMPORTATION PERMIT.

GOVERNMENT NOTICE NO. 110 OF 1908, SECTION 1 (2).

1. Applicant's Name and Address.....
  2. Number and Class of Cattle to be imported.....
  3. Area or Farm and District where Cattle are at present located.....
  4. Area or Farm and District to which Cattle are to be moved.....
- Applicant's Signature.....
- Date .....
- Application .....
- Permit No. ....

## ANNEXURE "B."

I,.....residing on the farm .....  
in.....do solemnly and sincerely declare that the animals  
enumerated below have been in my possession since birth, and that lung-  
sickness, pleuro-pneumonia or any other contagious or infectious disease has  
not existed amongst any of my cattle or on my farm within the last four years,  
and that to the best of my knowledge and belief such cattle in travelling  
to.....\* station will not come in contact with any  
animals amongst which lung-sickness or any other contagious or infectious  
disease has existed during that period.

And I make this solemn declaration conscientiously believing the same to  
be true.

Declared to at.....on this.....day  
of.....before me....., Resident Magistrate  
for the District of .....

Number of Animals.....Bulls.....Heifers.....  
Breed.....

Seller's Name and Address.....

Purchaser's Name.....

Place in Southern Rhodesia to which animals are being sent.....

\* Station within the Colony of origin.

No. 124 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 30th April, 1908.

## IMPORTATION OF CATTLE.

**U**NDER and by virtue of the powers vested in me by the "Animals  
Diseases Consolidation Ordinance, 1904," I do hereby declare and  
make known that notwithstanding anything to the contrary elsewhere pro-  
vided, the importation of cattle for *bona-fide* slaughter purposes may be per-  
mitted into the Umtali district from the adjoining Portuguese Territory under  
the following terms and conditions :—

1. The importation and disposal of cattle introduced in terms of these  
regulations shall be under the absolute control and direction of the local  
veterinary surgeon or other duly appointed officer, and shall be regulated by  
the requirements of consumption.

2. The importation shall be limited to a fenced enclosure approved of by  
the Controller of Stock, which shall be situated on the Rhodesian side of the  
Anglo-Portuguese frontier line where it passes through the farm "Birkley."

3. Cattle introduced as aforesaid shall be immediately slaughtered, and no  
meat thereof shall be removed without special permission unless it is entirely  
free from skin and ears.

4. The hides of animals slaughtered in the said enclosures shall be immedi-  
ately immersed in an approved insecticide for a period of not less than twelve  
hours, and shall not be removed from the said enclosure unless accompanied  
by a certificate signed by a veterinary surgeon that they have been satisfac-  
torily disinfected and dried.

5. Any person contravening the provisions of these regulations, or the  
instructions or directions of the local veterinary surgeon or other duly author-  
ised official, given in terms of these regulations, shall be liable, in respect of  
each offence, to a penalty not exceeding £20, or, in default of payment, to  
imprisonment, with or without hard labour, for a period not exceeding three  
months, unless where more severe or heavier penalties have, by the aforesaid  
Ordinance, been expressly provided.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,  
Treasurer.

No. 152 of 1908.

Department of Agriculture,  
 Administrator's Office,  
 Salisbury, 21st May, 1908.

### IMPORTATION OF CATTLE FROM NORTH-EASTERN AND NORTH-WESTERN RHODESIA.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby cancel sections 4, 5, and 6 of Government Notice No. 187 of 1906, and declare the following to be in force in lieu thereof :-

1. Cattle may be imported from North-Eastern Rhodesia, provided that :-
  - (a) The permission of the Chief Inspector of Cattle be first had and obtained.
  - (b) All cattle be introduced by way of the port or town of Feira, which is hereby declared a Port of Entry for cattle, and taken to Sipolilo.
  - (c) All cattle shall remain in quarantine at Sipolilo for a period of six weeks from date of arrival.
2. Slaughter cattle may be imported from North-Western Rhodesia, provided that :-
  - (a) The permission of the Chief Inspector of Cattle or of a Government Veterinary Surgeon be first had and obtained.
  - (b) All such cattle shall be conveyed by rail *via* the Victoria Falls, which is hereby declared a Port of Entry for cattle, and be carried to the station or siding nearest to the centre of consumption.
  - (c) On arrival at their destination such cattle shall be subject to the regulations controlling the movement and disposal of slaughter cattle.
3. Cattle for general purposes may be imported from North-Western Rhodesia, provided that :-
  - (a) Such importations shall take place between the 1st April and the 30th September in each year.
  - (b) The permission of the Chief Inspector be first had and obtained.
  - (c) All cattle imported shall be introduced by rail only and *via* the Victoria Falls, and shall be branded before entry with the letters "N.Z." on the near shoulder.
  - (d) All cattle shall on entry be taken to a prescribed area to the north of the Gwaai River, where they shall remain in quarantine for a period of six weeks from the date of their arrival.
  - (e) No cattle shall be removed from the quarantine area until examined by a Government Veterinary Surgeon.
  - (f) All cattle removed from the quarantine area as aforesaid shall be taken direct to their destination and shall not be moved therefrom for a period of twelve months from the date of arrival thereat.
4. Every application for permission to introduce cattle under sections 1 and 3 shall be accompanied by a certificate in the form of Annexure "A" attached to this Notice.
5. Any person found introducing cattle from North-Eastern or North-Western Rhodesia otherwise than in accordance with these regulations or submitting any certificate false in any material particular or refusing or neglecting to submit cattle introduced to proper inspections and tests, or failing to quarantine properly such cattle when introduced, shall be liable to a fine not exceeding £10 for every animal in connection with which the offence complained of is committed, and in default of payment of any fine inflicted to imprisonment with or without hard labour for any period not exceeding three months, and the cattle in regard to which the complaint has been laid and proved may, under the written direction of the Administrator, be destroyed without compensation.

W. H. MILTON,  
 Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FYNN,  
 For Treasurer.

## ANNEXURE "A."

I, ....., residing on the farm..... in the district of..... in the Territory of North-Eastern or North-Western Rhodesia (as the case may be), do solemnly and sincerely declare that the animals enumerated below have been in my possession for twelve months, or that I purchased them from....., residing in the district of....., in the Territory of North-Eastern or North-Western Rhodesia, on the day of..... (as the facts permit), and that no case of lung-sickness or other contagious disease has existed amongst any of my cattle or on my farm or other cattle with which they have been in contact within the last two years, and that, to the best of my knowledge and belief, such cattle, in travelling to Feira (or Victoria Falls), will not come in contact with any animals amongst which lung sickness or other contagious disease has existed during that period.

No. 151 of 1908.

Department of Agriculture,  
Administrator's Office,  
Salisbury, 21st May, 1908.

## REMOVAL OF CATTLE FOR SHOW PURPOSES.

**N**OTWITHSTANDING anything to the contrary contained in the regulations published under Government Notices Nos. 188 of 1906 and 217 of 1907, I, under and by virtue of the powers conferred upon me by the "Animals Diseases Consolidation Ordinance, 1904," do provide as follows:—

1. The movement of cattle for the purposes of exhibition at *bona fide* agricultural shows may be permitted under such conditions as the Chief Inspector may from time to time prescribe.

2. The granting of permits for the purposes aforesaid and the nature of the conditions to be attached thereto shall be at the absolute discretion of the Chief Inspector.

3. Any person contravening the provisions of these regulations, or the conditions attached to permits issued thereunder, shall be liable to a fine not exceeding £20, or in default of payment to imprisonment, with or without hard labour, for a period not exceeding three months.

W. H. MILTON,  
Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FYNN,  
For Treasurer.

No. 268 of 1907.

Department of Agriculture,  
The Treasury,  
Salisbury, 26th December, 1907.

## REMOVAL OF CATTLE FOR SALE.

**N**OTWITHSTANDING anything to the contrary contained in the Regulations published under Government Notices Nos. 188 of 1906 and 217 of 1907, I, under and by virtue of the powers conferred upon me by the "Animals Diseases Consolidation Ordinance, 1904," do hereby provide as follows:—

1. The assembly of cattle for purposes of sale by auction or otherwise may be permitted at such places and under such conditions as the Chief Inspector may from time to time prescribe.

2. The movement of cattle into the province of Mashonaland and the fiscal division of Gwelo from other places in Southern Rhodesia may be permitted under such conditions as the Chief Inspector may from time to time prescribe.

3. The granting of permits for the purposes of Sections 1 and 2 hereof and the nature of the conditions to be attached thereto shall be at the absolute discretion of the Chief Inspector.

4. Any person contravening the provisions of these Regulations or the conditions attached to permits issued thereunder shall be liable to a fine not exceeding £20 or in default of payment to imprisonment with or without hard labour for a period not exceeding three months.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 42 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 28th February, 1907.

#### RABIES.

UNDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that, on and after the 15th day of March, 1907, all and singular the Government Notices regarding the disease of Rabies now subsisting and in force in this Territory are hereby cancelled and repealed, except as to acts done or penalties incurred at the date of the coming into force of this Notice, and except as to officers appointed under Government Notice No. 286 of 1906, whose appointments shall remain valid for the purposes of this Notice, and in lieu thereof the following regulations shall have full force and effect:—

1. All and several the various Native Districts of Southern Rhodesia are hereby declared to be areas infected with the disease of Rabies.

2. Subject to any penalty a dog owner may have incurred under Government Notice No. 285 of 1906 by not registering his dog before the 1st day of February, 1907, the owner of any unregistered dog liable to registration may register the same at any time after the said date.

3. On and after the date of this Notice becoming operative the owner of every dog arriving at the age of three months, and the owner of every dog imported into Southern Rhodesia after that date shall register such dog with an official appointed for the purpose, provided that this provision shall not apply to any Municipality, Township or similar area in which provision for registration exists and is duly enforced.

4. A registration badge shall be issued for each and every dog registered, and the said badge must be attached to a proper and sufficient collar to be supplied by the owner, which must be placed and kept on each dog registered.

5. A fee to cover the cost of registration and supply of the badge in the amount of sixpence will become demandable and payable on registration of each dog.

6. Any dog found at large after the date of this Notice becoming operative, not having and bearing a registration badge duly issued by an official or the local authority, may be summarily destroyed by any person.

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the pattern lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or with a muzzle sufficient to prevent its biting or injuring any person or other animal with its teeth, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of March, 1907, not being sufficiently muzzled, may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty hereinafter prescribed.

9. Any Magistrate, Police Officer, Native Commissioner, Government Veterinary Surgeon or other official vested with the performance of functions under the Animals Diseases Consolidation Ordinance, 1904," may, on it appearing to him that any dog or other animal is showing symptoms which justify investigation as to whether such dog or animal is suffering from rabies or not, order the proper detention, isolation and control of such dog or animal either in the hands of the owner or at some other suitable place.

10. Should any dog show symptoms which lead to the suspicion that such dog may be suffering from rabies, the owner thereof shall forthwith notify the fact to the nearest official vested with powers under these regulations, who shall immediately report same to the Chief Veterinary Surgeon, and shall either destroy the said dog or isolate and secure it for further observation.

11. On its appearing that any animal is actually suffering from rabies, any of the above-mentioned officials may order the destruction of such animal, or may himself destroy it and may further take control of or destroy, if deemed necessary, any animal which has been in contact with a rabid animal or an animal suspected of being rabid.

12. The carcases of all animals destroyed on account of their being infected with rabies shall be thoroughly burnt by the person or official destroying them, save that such parts as may be required for scientific investigation may be retained under proper precautions. In any case in which a human being has been bitten by a rabid animal, the head of such animal shall, if possible, be taken and sent to the nearest Veterinary Official.

13. Any person contravening any of the above regulations or failing to carry out any of the provisions thereof shall be liable on conviction to a fine not exceeding £10 for each offence or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

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No. 156 of 1907.

#### RABIES.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after 15th August, 1907, Sections 7 and 8 of Government Notice No. 42 of 1907 are repealed and the following new Sections substituted:—

7. Every dog shall be kept muzzled with a standard wire muzzle made according to the patterns lodged with each Magistrate and Assistant Magistrate, and open to inspection on application to him, or shall be secured in an enclosure or by chain in such a manner that it shall not have access to persons or animals nor other animals access to it.

8. Every dog found at large after the 15th day of August, 1907, not being muzzled with a standard wire muzzle may be summarily destroyed by any person, and the owner or person responsible for the custody of such dog shall be liable to the penalty prescribed in the aforesaid Government Notice.

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No. 228 of 1907.

#### RABIES.

**U**NDER and by virtue of the powers vested in me by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby declare and make known that on and after the 1st November, 1907, the following regulation shall have full force and effect in addition and supplementary to the Regulations proclaimed by me under Government Notice No. 42 of 28th February, 1907.

14. Notwithstanding the provisions of Section 7, the following classes of dogs shall be allowed to go unmuzzled subject to the conditions respectively set forth in each class.

a. Pointers, Setters, Spaniels, and all such sporting dogs, when being *bona fide* used and at work before the gun, and under the ordinary supervision and control of persons in charge of them, carrying guns for the shooting of game.

- A. Packs of Foxhounds, Harriers or Beagles, duly registered as such before the Resident Magistrate of the District in which their owner or owners reside, when under the ordinary supervision and control of not less than two persons engaged in the chase.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator.

F. J. NEWTON,

Treasurer.

No. 129 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 7th May, 1908.

#### RABIES.

WHEREAS it has been shown to me that it is expedient to take measures to prevent the spread of rabies in the undermentioned district, Now Therefore, under and by virtue of the powers in me vested by the "Animals Diseases Consolidation Ordinance, 1904," I do hereby authorise and direct that all dogs at the kraals of the natives Chiduku and Maveja, and all dogs within a radius of ten miles of such kraals in the native district of Makoni, shall be destroyed by shooting, poisoning or other approved methods, and that the carcasses of all dogs shall be burnt or buried at a depth of not less than three feet below the surface.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

P. D. L. FENN,

For Treasurer.

No. 178 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 18th June, 1908.

#### RABIES.

UNDER and by virtue of the powers in me vested by the "Animals Diseases Consolidation Ordinance, 1904," I hereby declare and make known that the provisions of Government Notice No. 42 of 1907, relating to the muzzling of dogs shall not apply to the following areas:—

The Towns and Commonages of Salisbury, Bulawayo, Umtali, Gwelo, Victoria, Selukwe, Gwanda, Hartley, Enkeldoorn and Melssetter.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 133 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 7th May, 1908.

# IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby cancel Government Notice No. 211 of 1907 and declare the following to be of full force and effect in lieu thereof :—

1. Until further notice no person shall introduce into this Colony any grape vine, Virginia creeper, or other plant of the family *vitacæa* or any fruit or other portion thereof, from any of the following districts of Cape Colony :—

Aberdeen	Albany.	Alexandra.
Bathurst	Bedford.	Cradock.
Cathcart.	East London.	Fort Beaufort.
Graaff-Reinet.	Glen Grey.	Humansdorp.
Jansenville.	King William's Town.	Port Elizabeth.
Komgha.	Middelburg.	Somerset East.
Peddie.	Queenstown.	Tarka.
Stockenströöm.	Stutterheim.	
Uitenhage.	Victoria East.	

This regulation shall not, however, apply to grape jam, wine, brandy, vinegar or must.

2. If at any time an inspector shall find any grape vine, Virginia creeper or other plant of the family *vitacæa*, or any fruit or other portion thereof introduced into this territory in contravention of this regulation, he shall order the same to be immediately removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 236 of 1907.

Department of Agriculture,

Administrator's Office,

Salisbury, 21st November, 1907.

# IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers vested in me by the "Importation of Plants Regulation Ordinance, 1904," I do hereby declare that, notwithstanding anything to the contrary appearing in Government Notice No. 141 of 1906, and until further notice, the importation into this territory of any tree, shrub, or vegetable, and the fruit, leaves, cuttings, bark or any part thereof whatsoever, except seed, from the Orange River Colony is strictly prohibited.

If at any time an Inspector shall find any tree, plant, fruit, vegetable or portion thereof introduced into this territory in contravention of this regulation, he shall order the same immediately to be removed from the territory, or the Secretary for Agriculture may order the same to be destroyed without delay.

All permits for the introduction of nursery stocks from the aforesaid Colony which have been granted under Section 16, Government Notice No. 141 of 1906, shall be and are hereby withdrawn.

Any person guilty of a contravention of these regulations shall be liable to a fine not exceeding £10, or in default of payment to imprisonment with or without hard labour for a period not exceeding one month.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 197 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 2nd July, 1908.

#### IMPORTATION OF PLANTS, Etc., REGULATIONS.

UNDER and by virtue of the powers in me vested by the "Importation of Plants Regulation Ordinance, 1904," I do hereby provide that the Regulations published under Government Notice No. 133 of the 7th May, 1908, shall not apply to the importation of raisins.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 237 of 1906.

#### GAME LAW CONSOLIDATION ORDINANCE, 1906: CLOSE SEASON, &c.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw all notices relating to game preservation and issued in terms of "The Game Preservation Ordinance, 1899," and declare the following to be of force and effect in lieu thereof:—

#### CLOSE SEASON.

1. In the whole of Southern Rhodesia, the close season for game in Class "A" shall be from 1st November to 30th April in each year.
2. In the whole of Southern Rhodesia, the close season for game in Class "B" shall be from 1st December to 30th June in each year.
3. Up to 31st March, 1908, the following game shall be strictly protected and not hunted or destroyed within the respective areas mentioned:—
  - (a) Oribi, within the magisterial district of Charter.
  - (b) Grysbok, within the magisterial district of Bulawayo.
  - (c) Koorhaan, throughout Southern Rhodesia, except the magisterial districts of Charter and Victoria.
  - (d) All game within the limits of the commonages or townlands of Salisbury, Bulawayo, Umtali, Gwelo and Enkeldoorn.

4. The operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 31st December, 1907, and Class "B" up to 30th June, 1907, from date hereof within the magisterial district of Melsetter.

5. That the operations of Sections 5 and 12 of the said Ordinance shall be suspended in regard to all game in Classes "B" and "C," except Ostrich, Elephant, Zebra, Hippopotamus, Rhinoceros, black and white; and all such of the Antelope species as are not contained in Classes "B" and "C" of the said Ordinance within the limits described in the schedule hereto, as to the districts of Hartley and Lo Magondi.

6. All game is strictly preserved and shall not be hunted or destroyed until further notice within the following area, which is declared a game sanctuary:—

An area in the Urungwe Sub-district of the District of Lo Magondi in the Province of Mashonaland, bounded as follows:—

On the North and West by the River Zambesi, starting at the point where the Lozenzi River joins the Zambesi and following the course of the latter river to its junction with the Sanyati River.

On the East by an imaginary line drawn from the junction of the Indurume and the Nyaodsa Rivers to the headwaters of the Lozenzi River and thence along the course of the Lozenzi River to its junction with the Zambesi River.

On the South by an imaginary line drawn due West from the point of junction of the Indurume and Nyaodsa to the Sanyati River, thence along the course of this river to where it enters the Zambesi.

#### SCHEDULE.

1. Hartley District.—Along the North side of the Railway from Umfuli Bridge to Umzwezwe Bridge, thence along the Umzwezwe River to its junction with the Umnyati, thence along the Umnyati to its junction with the Umfuli, along the Umfuli to its junction with the Umsengezi, up the Umsengezi to the Hartley-Lo Magondi footpath crossing near Madzorera Kraal, thence along the Hartley-Lo Magondi footpath to Umfuli Bridge.

2. The whole of the Lo Magondi district except within the limits declared a game sanctuary under Section 6 hereof.

No. 91 of 1907.

#### "GAME LAW CONSOLIDATION ORDINANCE, 1906."

UNDER and by virtue of the powers conferred on me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following Locust Birds:—

- (1) Great Locust Bird or White Stork (*Ciconia alba*).
- (2) Lesser Locust Bird or Nordmann's Pratincole (*Glareola melanoptera*).
- (3) Small White Heron or Cattle Egret (*Bubulcus ibis*).
- (4) Wattled Starling (*Dilophus carunculatus*).

are added to Class "A" of the said Ordinance, and shall henceforth be strictly protected, and not hunted or destroyed throughout Southern Rhodesia.

No. 41 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 20th February, 1908.

GAME LAW CONSOLIDATION ORDINANCE, 1906.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby declare that the following regulations shall, from date of publication hereof, have full force and effect:—

1. To enable holders of a game licence to hunt game during the close season, the operation of Section 12 of the said Ordinance shall be suspended in regard to Class "A" up to 30th April, 1909, on private land within the Magisterial District of Melssetter, subject to the provisions of Section 16 of the Ordinance.
2. Up to the 30th April, 1910, all game within the limits of the Commonage or Townlands of Melssetter shall be strictly protected, and shall not be hunted or destroyed.

W. H. MILTON, Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON, Treasurer.

No. 120 of 1908.

Department of Agriculture,

Administrator's Office,

Salisbury, 23rd April, 1908.

GAME LAW CONSOLIDATION ORDINANCE, 1906.

UNDER and by virtue of the powers conferred upon me by the "Game Law Consolidation Ordinance, 1906," I do hereby cancel and withdraw section 1 of Government Notice No. 237 of 1906, and declare the following to be of force and effect in lieu thereof:—

CLOSE SEASON—CLASS "A."

1. In the several districts of Mashonaland, the close season for game in Class "A" shall be as follows:—

- (i.) For birds, from 1st October to 30th April in each year.
- (ii.) For antelope (in Class "A"), from 1st November to 30th April in each year.

2. In the several districts of Matabeleland, the close season for all game in Class "A" shall be from 1st November to 30th April in each year.

PROTECTION OF GAME ON COMMONAGES.

3. Up to 30th April, 1910, all game within the limits of the Commonages or Townlands of Salisbury, Bulawayo, Umtali and Gwelo, shall be strictly protected and shall not be hunted or destroyed.

W. H. MILTON,

Administrator.

By command of His Honour the Administrator in Council.

F. J. NEWTON,

Treasurer.

No. 9 of 1907.

## NORTH-WESTERN RHODESIA.

WHEREAS there is reason to believe that certain diseases in cattle exist in the Territory of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, and it is therefore expedient to take measures to prevent the spread of such diseases to North-Western Rhodesia.

Now, therefore, under and by virtue of the powers in me vested by Section 2 of His Excellency the High Commissioner's Proclamation, No. 18 of 1906, bearing date the 31st day of July, 1906, I do hereby order and declare and make known as follows:—

1. That Government Notices, No. 2 of 1902, and No. 11 of 1906, are hereby withdrawn, and the following Regulations substituted:
2. The introduction of any bull, ox, cow, heifer or calf or the meat of any such animals, into the Territory of North-Western Rhodesia from the Territories of Southern Rhodesia, the Bechuanaland Protectorate, German West Africa, Portuguese West Africa, and Portuguese East Africa, is prohibited until further notice.
3. No person shall introduce into the Territory of North-Western Rhodesia from the Territories aforesaid, any horse, mare, gelding, mule, donkey, sheep, goat or pig, horns or skins, or any kind of vehicle, wagon gear, trek gear, or harness, without having first obtained the special permission in writing of a District Commissioner, Civil Commissioner, or other person thereto authorized by me; and such animals, horses, skins, vehicles, gear, or harness, shall enter the Territory of North-Western Rhodesia at such place, and under such conditions as regards quarantine and disinfection, as shall be ordered by the person issuing such written permission as is above described.
4. Whenever any conditions as to quarantine, isolation, disinfection or otherwise, are imposed, such conditions shall be fulfilled at the sole risk and expense of the owner, consignee, or other person concerned.
5. All live stock imported into the Territory by rail by way of Victoria Falls and Livingstone, shall be inspected at Livingstone Station, and, whenever disinfection is ordered, shall be disinfected at that Station.
6. In the case of live stock consigned to any point on the railway line north of Livingstone Station, the officer authorized to issue the written permission aforesaid shall further order the disinfection of the truck or horse-box in which such stock is being conveyed. Such disinfection shall be carried out at the expense of the owner or consignee of the stock, or other person concerned therein.
7. Consignors and importers of live stock shall give not less than seven days' notice of the arrival of such stock at Livingstone Station. Such notice shall be given to the Civil Commissioner, Livingstone, or to such other official as may hereafter be appointed.

ROBERT CODRINGTON,

Administrator.

By command of His Honour the Administrator,

HENRY RANGELEY,

Acting Secretary.

Administrator's Office,  
Livingstone, North-Western Rhodesia,  
30th September, 1907.

## Departmental Notices.

### DESTRUCTION OF WILD CARNIVORA, ETC.

It is hereby notified for public information that the Notice issued by this Department, dated 8th June, 1906, offering certain rewards for the destruction of wild carnivora, etc., will, *after 31st March, 1908*, cease and determine, and thereafter rewards will be paid only on the scale and conditions herein set forth.

2. Rewards will be paid as follows:—

For each Lion ... ..	£3	0	0
„ Leopard ... ..	1	0	0
„ Cheetah ... ..	1	0	0
„ Wild Dog ... ..	0	10	0
„ Crocodile, of not less than 3 ft. in length ...	0	10	0

3. Rewards will be paid to Europeans by the Magistrate or Native Commissioner, and to natives by the Native Commissioner of the district, within three months of the date upon which the animal is killed, on a declaration made in the form of the annexure hereto.

4. In proof of destruction, applicants for rewards will be required to produce and surrender, in the case of Lion, Leopard or Cheetah, the skin with the tail not severed, and in the case of Crocodile or Wild Dog, the unskinned head.

5. The skins and heads of animals for which rewards have been paid shall be the property of the Government, and shall be disposed of in such manner as may be decided on.

E. ROSS TOWNSEND,

Secretary for Agriculture.

### FARM APPRENTICES.

The Secretary for Agriculture would be glad to receive the names of farmers who would be willing to receive young Englishmen desirous of obtaining acquaintance with local systems of agriculture before taking up land on their own account, and also the terms on which such would be received, as he is in constant receipt of enquiries for such employment.

## STRYCHNINE.

Stockowners can obtain a limited quantity of strychnine for the destruction of carnivora at a cost of 3s. 6d. per ounce.

## DONKEYS.

The B.S.A.P. Transport Department offer two pure-bred Zanzibar donkey stallions for service. Stud fee, ten shillings. Further particulars may be obtained from the O.C., Transport, Salisbury.

## GOVERNMENT STALLIONS FOR PUBLIC STUD.

The stallion "Robber Knight" has now been moved to Salisbury, and the stallion "Dolfos" has taken his place at Bulawayo; these stallions are stationed for public stud purposes at Salisbury and Bulawayo, where a limited number of mares can be served free of charge.

Applications, giving full particulars of the mares to be served, should be addressed to the Veterinary Officers at Bulawayo and Salisbury, from whom further particulars can be obtained.

The owners of mares brought to stud will have to make all necessary arrangements for attendance, stabling and feeding of their animals, as the Department can take no responsibility whatever.

As the number of mares which can be served is very limited, the Veterinary Officers in charge are instructed to refuse service if any mare submitted is suffering from any hereditary disease or is of an inferior type.

*Pedigree*.—"Robber Knight" by "Sir Hugo," ex "Fritters" by "St. Simon."

## VAPORITE.

The new preparation, "Vaporite," suitable for the destruction of cut-worms, wire-worms, white ants, and other soil-infesting pests, can be obtained from the Department in quantities of not less than 2 cwt. at 17s. 6d. per cwt. Application to be accompanied by remittance covering cost and transport charges.

## PASPALUM DILATATUM.

A quantity of this seed is available at 1s. 4d. per lb., on application to the Department. Remittance to accompany order and to include postage or railage.

Quantity of seed required per acre 8 to 10 lbs.

## TOBACCO SEED.

The following varieties of tobacco seed may now be obtained by planters from this Department at the prices named, which include postage. Orders must be accompanied by remittance.

	per oz.	
	s.	d.
Turkish, Yenedje, Xanthi, Aya Solouk ... ..	1	6
Turkish, Cavalla ... ..	1	6
Goldfinder (a bright Virginia leaf, when flue-cured, brighter than Hester) ... ..	1	2
Hester (a bright Virginia, suitable for sandy soils) ... ..	1	0

## TOBACCO SEED BED COVERING.

A large supply of calico for covering tobacco seed is now available. It can be obtained from the Anglo African Trading Company at Salisbury, Bulawayo, and Gwelo. Price 2½d. per square yard.

## CULTURE OF TOBACCO.

This book, by G. M. Odlum, containing the History of the Tobacco Plant from seed to manufacture, can be obtained from this Department. Price 2s., post free 2s. 4d.

## PRIZE COMPETITION FOR RHODESIAN GROWN TOBACCO LEAF.

The following prizes are offered by the British South Africa Company to be awarded for the best crops of tobacco leaf grown during the season 1907-8.

1. For Rhodesian grown leaf from Turkish seed.
  - (a) Best crop weighing between one thousand and five thousand pounds: £25
  - (b) Best crop weighing five thousand pounds and over: £75.
2. For Rhodesian grown leaf from American seed and flue cured.
  - (a) Best crop weighing between one thousand and five thousand pounds: £25.
  - (b) Best crop weighing five thousand pounds and over: £75.

#### CONDITIONS OF COMPETITION.

1. All competing crops must be cured, dried, packed in bales and delivered for sale at one of the Company's warehouses in Rhodesia.
2. Picked or selected exhibits representing but a portion of a crop cannot enter for competition.
3. Any or all competing crops may be disqualified by the Judges, if in their opinion they are not properly packed or in keeping condition.
4. Two Judges, both expert tobacco leaf men, will be appointed, one to be nominated by the British South Africa Company, and the other by the Rhodesian Agricultural Union. If necessary, an Umpire may be nominated by the Judges.
5. No competitor shall enter for both prizes in the same class.
6. All competing crops shall be the product of the season in which they are entered for competition.
7. Crops can be lodged at one of the Company's warehouses at Salisbury or Bulawayo any time during the season up to the end of December, but notice of intention to enter for competition should be sent to the Agricultural Department at as early a date as possible, and not later than 31st August.

### RUST PROOF WHEAT.

A limited quantity of Rust proof seed Wheat has been secured and is now available for being given out to farmers in parcels for trial in Rhodesia.

Applications should be forwarded to the Secretary, Agricultural Department, as early as possible in order that the distribution may be completed in time for sowing this next rainy season.

No charge will be made for the seed, but those receiving it will be required to furnish the Department with a report on its growth together with samples of the grain produced.

### IMPORTED MAIZE SEED.

During his visit to America Mr. Odium made a selection of a quantity of maize seed for the Rhodesian Government.

This seed has now arrived, the varieties being Boone County and Gold Standard Leman.

Applications for this seed will be received by the Secretary for Agriculture from farmers who are willing to undertake to keep it separate and unmixed so that the samples may be kept pure from being fertilized with other mealies on the farm.

Applications should be sent in to the Agricultural Department as early as possible in order that the quantities may be apportioned.

### INSTRUCTIONS FOR TAKING SAMPLES OF SOIL FOR ANALYSIS.

In taking samples of soil for analysis, it is important that they should be of a truly representative character; and, when sending them in to the Department, it should be stated for what purpose it is intended to use the land, whether for cereals, tobacco, lucerne, fruit-growing, etc. If much difference exists in the area to which the analysis is intended to refer, a separate sample of each of the different soils should be forwarded.

Samples should be taken as follows :—

Dig several holes 3 feet deep, the number varying according to the size of the land, care being taken to avoid tree roots, and hills, or any spots marked by rank vegetation or the absence of vegetation. Select the hole showing the most representative character, and from the side of it cut a section with a knife or trowel, about 2 inches square and 10 inches deep, first clearing off the top vegetation. Place this section in a bag by itself (No. 1), then take another section below the first, about 14 inches deep, and put in a separate bag (No. 2); below the second section take a third, about 12 inches deep, and place in a third bag (No. 3). If rock is encountered before this section can be cut, send a sample of the rock, about 1 lb. weight.

When the sample is of cultivated land, the top section should be taken from each of the holes made and thoroughly mixed, and about 4 lbs. of the mixture sent for analysis; 2 or 3 lbs. each of the other sections, taken at the depths mentioned above, from one hole only, is sufficient. When forwarding the samples, as much information as possible should accompany them; such as, whether the situation is near a river, if from sloping or level ground, the behaviour of the land under much rain or severe drought, if it yields good crops or poor, if kraal or other manures have been applied recently and in what quantities.

Samples should be addressed to: The Secretary for Agriculture, Agricultural Department, Salisbury, and accompanied in all cases with full particulars as set forth above. No attention will be paid to samples sent without full details.

#### Schedule of Charges made for Analysis in the Agricultural Laboratory, Salisbury.

	£	s.	d.
1. Estimation of two or three constituents in mineral or other manures ... ..	0	15	0
2. Analysis of water for stock or irrigation purposes ... ..	1	0	0

	£	s.	d.
3. Estimation of Lime or Phosphoric Acid in rock specimens ... ..	0	15	0
4. Partial analysis of soil—Mechanical analysis and determination of one or two constituents ... ..	2	0	0
5. Complete analysis of soil ... ..	3	0	0

At present no charge will be made to *bona fide* farmers. The charges in the above schedule are for products sent in by merchants, dealers, and others interested in trade. The Analyst will exercise his discretion as to the examination of all samples, whether they are of sufficient importance for determination.

The right of publishing the result of any analysis is reserved by the Department.

### EXPORT OF SOUTH AFRICAN HAY TO GREAT BRITAIN.

The following wire has been received by His Honour the Administrator from His Excellency the High Commissioner relating to the export of hay from South Africa:

“Johannesburg, April 27th, 1908.

“I have received notification from the Secretary of State for the Colonies that, owing to risk of spread to farm stock in Great Britain of disease known as African Coast Fever through the medium of hay from South Africa, Board of Agriculture are taking steps under Diseases of Animals' Acts, 1894 to 1903, to prevent its importation unless and until they are satisfied that disease has been eradicated from South Africa.

“You should accordingly warn intending shippers that His Majesty's Government will probably take steps to prevent such hay being landed in Great Britain. The Board of Agriculture notifies that its interpretation of the term ‘Hay’ includes all dried fodder plants that have not had their seeds removed, and that term as used in this correspondence is intended to cover oat hay, vetch hay, lucerne hay (Alfalfa), as well as ordinary grass and clover hay.”

## Editorial Notices.

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Original subscribers to the *Journal*, who have complete sets of the earlier numbers to dispose of, are requested to communicate with this office, as numerous enquiries for the first and second volumes, now out of print, have been received.

Subscriptions to the *Journal* (5s.), issued bi-monthly, should be addressed to the paymaster, Agricultural Department, Salisbury. Only communications relating to the literary department should be addressed to the Editor, and if an answer is required in the pages of the *Journal*, should reach this office not later than the 15th of the month preceding publication. Charges for the insertion of advertisements will be forwarded upon application to the paymaster. Subscribers are requested to notify immediately the non-delivery of the *Journal*.

Farmers requiring latest market prices for produce and live stock at Kimberley, Johannesburg, Bulawayo, Gwelo, Salisbury, Umtali, and Beira, can obtain same from this office by next mail or prepaid wire.

Advertisements will be accepted from *bona fide* farmers wishing to effect sale, purchase or exchange of produce, live stock, or farm implements, at a minimum charge of 2s. 6d. per insertion of 20 words. Extra words will be charged for at the rate of 1s. for every ten words.

Applications for Advertisement Rates to be made to J. Kapnek, Sole Advertisement Contractor for "Rhodesian Agricultural Journal," P.O. Box 91, Salisbury and Box 45 Bulawayo.

## ADVERTISEMENTS.

### Farmer's Advertisement.

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**P**ERSIAN Ram Lambs for sale, from pure bred stock imported from Cape Colony. Apply H. E. Light, c/o. Meikle Bros., Salisbury.

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### FOR SALE.

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- 20 Half bred yearling Bulls.
- 20 Half bred yearling Heifers.

These have for sire our imported pedigree Shorthorn Bulls "Dunmore King" and "Loan Star," which were bought from the breeders, Mr. W. T. Malcolm, Dunmore Home Farm, Stirlingshire, and Mr. David Anderson, Loan of Errol Farm, Perthshire.

100 Bullocks from 2 to 3 years old. Suitable for slaughter or trek purposes.

All the above are in first class health and condition. The above opportunity is well worth the attention of farmers desirous of improving their herds.

Particulars: The Manager, A. L. Bruce's Trust, Magomero, Nyasaland.



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